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City of Seal Beach General Plan

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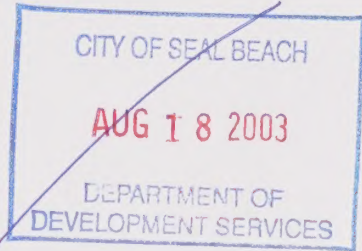
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Seal Beach Department of Development Services
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1997 SEISMIC PLAN - Safety Elem.

General Plan

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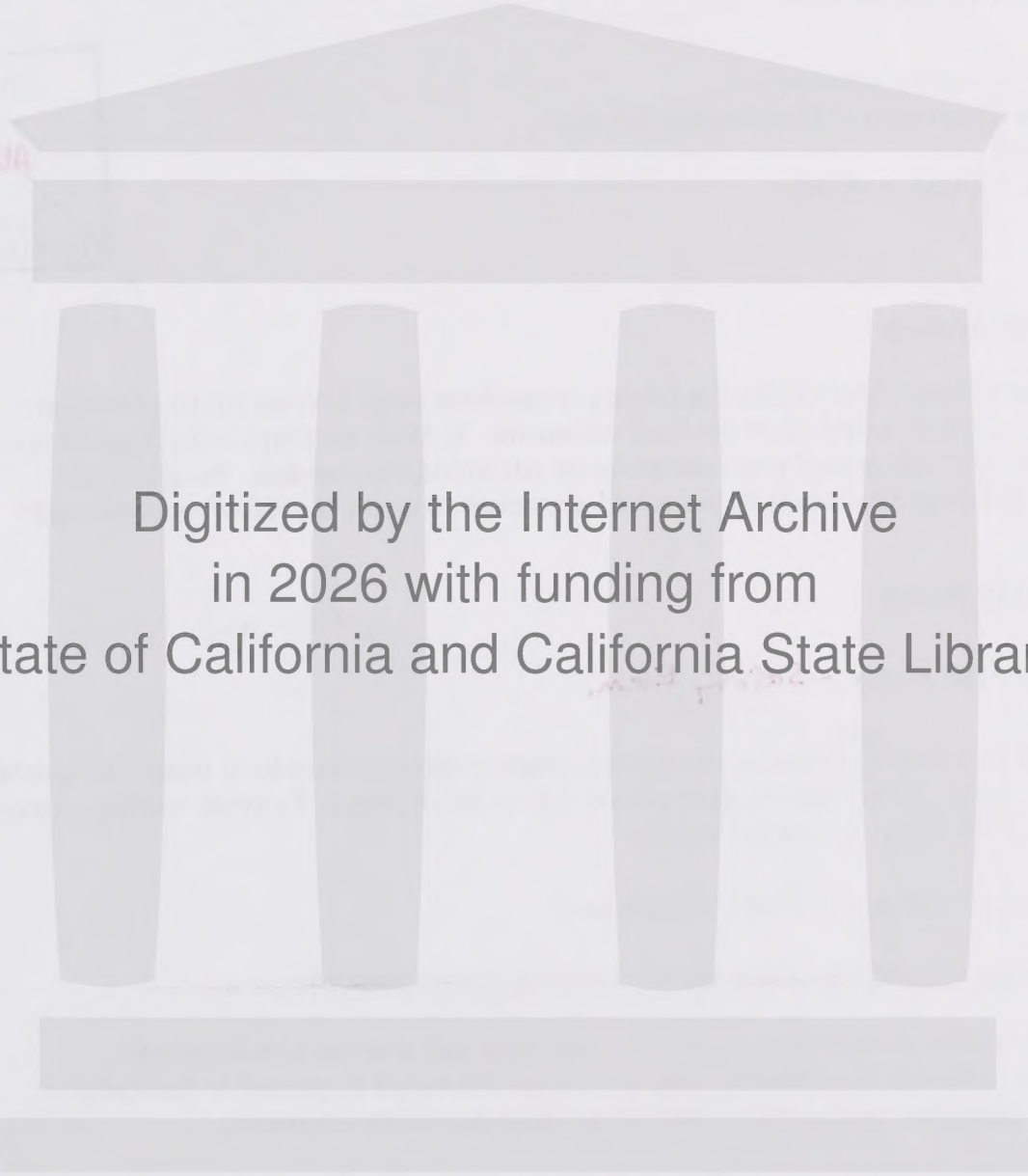
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Div. 1

POWERS AND DUTIES—GENERAL

§. 50110

fairly discriminates against such persons in the operation of a city or county government's equal employment opportunity program. Therefore, it is the intent of the Legislature that any survey or statistical tabulation conducted by a city, county, or city and county which has at least

5,000 residents or in which 5 percent of the population is of Filipino ancestry or ethnic origin, according to the last federal census, to identify the racial or ethnic characteristics of its employees shall separately identify persons of Filipino ancestry or national origin."

Library References

Census 69.

C.J.S. Census § 1 et seq.

Article 5

BOOKS, MAPS, AND OTHER DOCUMENTS

Sec.

- 50110. Publications; copies for state library and university; preservation.
- 50111. Damage by conflagration, etc.; copying into new books.
- 50112. Comparison; certification of copies.
- 50113. Certified copies; evidence; name and designation; effect.
- 50114. Expense of copying; payment.

Article 5 was added by Stats.1949, c. 81, p. 259, § 1.

§ 50110. Publications; copies for state library and university; preservation

The legislative body, and each office, officer, or employee of a local agency shall furnish the clerk three copies of each printed, mimeographed, or processed book, pamphlet, report, bulletin, or other publication issued by them at the expense of the local agency. The clerk shall send one copy of each publication to the State Library at Sacramento, the Institute of Governmental Studies of the University of California at Berkeley, and the Public Affairs Service of the University of California at Los Angeles, to be preserved for reference use in those institutions.

(Added by Stats.1949, c. 81, p. 259, § 1. Amended by Stats.1974, c. 544, p. 1252, § 18.)

Historical Note

The 1974 amendment substituted "the Institute of Governmental Studies of the University of California at Berkeley, and the Public Affairs Service of the State and the Bureau of Governmental Research of the University of California at Los Angeles".



General Plan Contents

Introduction
Land Use Element
Circulation Element
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Introduction

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Introduction

Need for General Plan

Incorporated in 1915 primarily as a farming community, the City of Seal Beach has grown into a small city within an urbanized region. Despite regional pressures, Seal Beach has successfully maintained its small-town atmosphere and community values.

The General Plan's first elements were adopted in 1973. Since that time individual elements and portions of elements have been revised and updated as needed. However, this document represents the first comprehensive revision to the General Plan and organizes and incorporates all previous elements and revisions. Intentionally, no changes in established land use designations or core policies were made as part of this effort.

Seal Beach has grown from a small community of approximately 1,000 persons in 1944 to a developed city of over 24,000 in 2002, with a variety of land uses providing housing, recreation, jobs, shopping, services, and open space. As development occurred, overall patterns of land use within the community were established, and a very limited amount of land suitable for development remains vacant.

The City of Seal Beach is now at a transition. Unlike past years, when planning for the future may have focused on the expansion, much of Seal Beach is now developed and the focus of planning for the future has evolved toward managing and enhancing development. Planning will now focus on retaining small-town character, stimulating new economic growth, revitalizing older areas, assuring public safety, finding new uses for underutilized land, and enhancing the amenities and environmental resources that define Seal Beach.

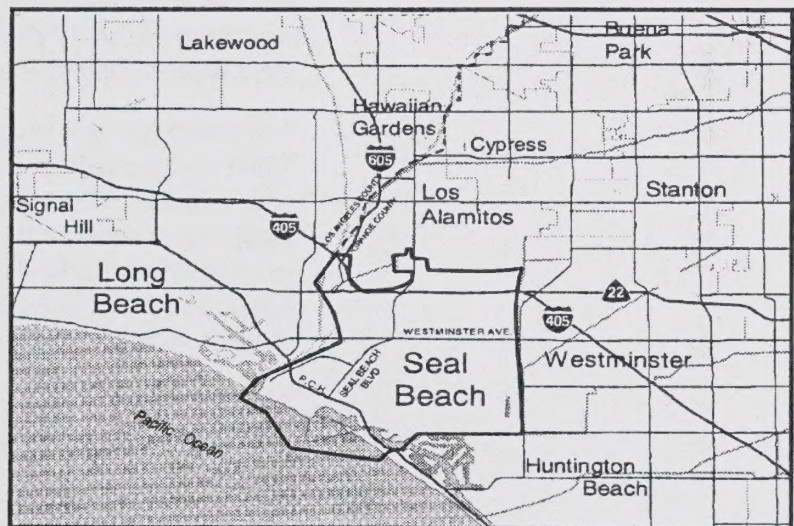
To address change, the General Plan serves as a policy guide for determining the appropriate physical development and character of Seal Beach. The Plan is founded upon the community's vision for Seal Beach and expresses the community's long-term goals. Seal Beach is a community that appreciates its small-town character and realizes the value of providing a balance of land use that will provide for a self-reliant community. Implementation of the Seal Beach General Plan will ensure that future development projects are consistent with the community's goals and that adequate



urban services are available to meet the needs of new and existing development.

Seal Beach Planning Area

Seal Beach is a beach community encompassing 11.5 square miles (or 7,296 acres) along the Pacific Ocean coast between the Cities of Huntington Beach and Long Beach. Other communities neighboring Seal Beach include Westminster, Garden Grove, Los Alamitos, and the unincorporated community of Rossmore. The City lies within the northwest portion of Orange County and is part of the larger Southern California region, an area in which the population and economy have grown substantially over the past 40 years.



Introduction - Figure 1 - Regional Location

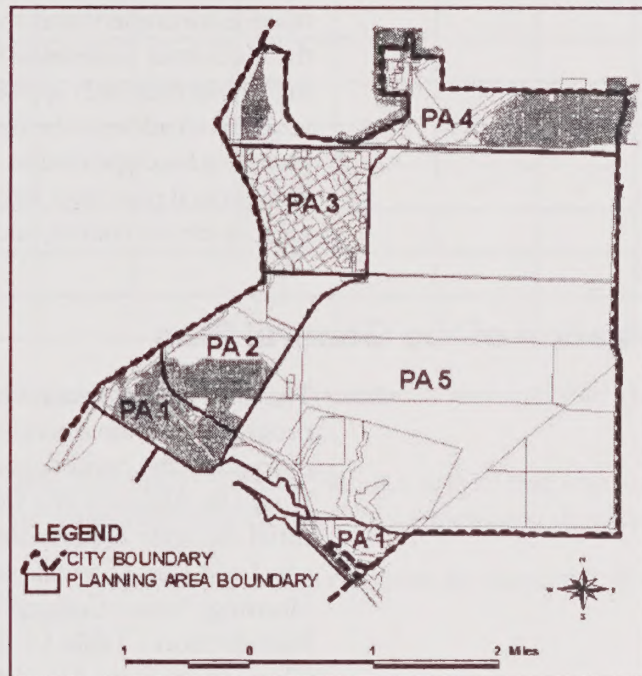
Although not large in size, Seal Beach encompasses a variety of neighborhoods and land uses. The City boundaries extend from the coastline to approximately 5 miles inland. The Coastal Zone extends approximately two miles inland. Major state and federal highways cross through the community and include the San Diego Freeway (I-405), I-605 Freeway, Garden Grove Freeway (SR 22), and Pacific Coast Highway (SR1). The City's westerly boundary largely follows the San Gabriel River.

Due to varied and unique characteristics of neighborhoods within the community, five Planning Areas have been established as summarized below. Detailed descriptions of the land uses and characteristics of each Planning Area are provided in the Land Use



Element. The City's five Planning Areas are illustrated in Figure 2 – Planning Areas.

- Planning Area 1 – Old Town/Surfside
- Planning Area 2 – Hellman Ranch/Marina Hill/Boeing
- Planning Area 3 – Leisure World
- Planning Area 4 – College Park/Bixby/Rossmoor
- Planning Area 5 – Naval Weapons Station



Introduction - Figure 2 - Planning Areas

Community Goals

The City Council has established 4 goals and 21 objectives that will provide staff, boards, and commissions with a blueprint to guide the City over the next several years. The four primary goals are:

- Deliver responsive, user-friendly customer service.
- Improve the quality of life for all residents.
- Create sustainable revenues for essential City services.
- Adopt a proactive, constructive approach to land uses.

Purpose of the General Plan

California state law requires each city and county to adopt a comprehensive, long-term general plan for its own physical development (§65300 of the California *Government Code*). In essence, a city's



general plan serves as the blueprint for the future. The plan must contain policies and programs designed to provide decision makers with a solid base for land use related decisions. The general plan must be comprehensive, internally consistent, and long-term.

The general plan must address many issues that are directly related to and influence land use decisions. In addition to land use, state law requires that the plan address circulation, housing, the conservation of natural resources, the preservation of open space, the noise environment and the protection of public safety (§65302 of the California *Government Code*). These issues are to be discussed to the extent that each applies to the particular jurisdiction. Although required to address the issues specified in state law, the general plan may be organized in a way that best suits the city or county. The general plan may also cover topics of special or unique interest to a city or county, such as cultural or coastal resources.

Organization of the General Plan

The City of Seal Beach General Plan contains goals, policies, and programs that are intended to guide land use and development decisions for the coming years. The General Plan consists of the Land Use Map and the following eight elements, which together fulfill the state requirements for a general plan. The eight elements are: Land Use, Circulation, Conservation & Open Space, Safety, Housing, Noise, Cultural Resources, and Growth Management. Introduction - Table 1 - Relationship of Seal Beach General Plan Elements to State-Mandated Elements illustrates the relationship between the General Plan's eight elements and the seven state-mandated elements.



Introduction

Introduction - Table 1 - Relationship of Seal Beach General Plan Elements to State-Mandated Elements

Seal Beach General Plan Elements	State-Mandated General Plan Elements							Optional
	Land Use	Circulation	Conservation*	Open Space*	Safety	Housing	Noise	
Land Use	✓							
Circulation		✓						
Conservation and Open Space			✓	✓				
Safety					✓			
Housing					✓	✓		
Noise							✓	
Cultural Resources			✓					✓
Growth Management**								✓

*These elements may be combined.

**While Growth Management is not a state-mandated element, it is mandated by Measure M for all jurisdictions in Orange County.

The Seal Beach General Plan consists of text and maps. The Plan provides direction for the City's growth and development.

Each of the General Plan elements is comprised of several sections:

- Purpose/Background
- Statutory Requirements
- Related Plans & Programs
- Issues, Goals, Objectives and Policies
- Maps

In addition, where appropriate within each element, policies and discussion are organized by Planning Area.

Updating and Periodic Review

The General Plan will be reviewed periodically to ensure that it remains current. If unanticipated conditions warrant, the General Plan will be amended, following technical study and public hearings by the Planning Commission and the City Council.



Introduction

Citizen Participation

A citizens' committee has been encouraged and established to review the General Plan documents at times of amendment and all development programs can be based on maximum involvement and true reflections of the aspirations of the citizens.



City of Seal Beach



Land Use Element

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Introduction

The purpose of the Land Use Element is to designate the proposed general distribution, general location, and extent of uses within the City and to establish population density and building intensity standards. The Land Use Element provides a guide for better decision-making by the public and private sectors to direct growth and development of the community into the type of environment desired by its residents.

Pursuant to California law, the Land Use Element serves as the long-range planning guide for development in the City by identifying and analyzing the location and extent of the development to be permitted. The Land Use Element establishes the character and identity of Seal Beach over the next 20 years.

Background

Planning is the process of establishing guides for decision-making based on objectives determined by City policies. The Land Use Element is an outline, or a guide, for decision making by public and private sectors to direct the growth of either new construction or modernization of the community into a type of environment desired by its people.

Adoption of the Land Use Element is not the end of the planning process, but only the beginning. Continued study, effort, support, and the commitment of public and private funds will be required to implement the provisions and policies in the General Plan. The General Plan is a statement of current policy. If conditions change to the extent that land use or other policies require a change, the General Plan should be restudied in a comprehensive manner to make sure that the changes proposed do not alter the balance between people and the facilities, utilities, and services that they require. Piecemeal change without in-depth study would reduce the value of the General Plan and defeat its purpose.

The time scale for development of many of the desirable or essential features of the General Plan may change considerably due to unforeseen events that may surface at a later date. The significant proposals, however, should not be lost or deleted from the General Plan unless they prove undesirable or



impractical due to situations that come to light in the interim period.



Statutory Requirements

Section 65302(a) of the *Government Code* requires a Land Use Element to designate the proposed general distribution and general location and extent of the uses of the land for housing, business, industry, open-space including agriculture, natural resources recreation, and enjoyment of scenic beauty, education, public buildings and grounds, solid and liquid waste disposal facilities and other categories of public and private uses of land. The Land Use Element shall include a statement of the standards of population density and building intensity recommended for various areas and other territory covered by the plan. The Land Use Element shall identify areas covered by the plan that are subject to flooding and shall be reviewed annually with respect to those areas. For Seal Beach, areas subject to flooding are addressed in the Safety Element.

Population Density

As mandated in the State of California General Plan Guidelines, this Land Use Element provides for population density standards. The City of Seal Beach consists of 11.51 square miles of land area and 1.72 square miles of water area for a total of 13.23 square miles of City land. The City's current population is 24,157 residents. Based upon these numbers, the population density of the City is 2,099 residents per square mile. In addition, the City currently consists of 14,267 residential units, which translates into 1,240 residential units per square mile. Over the past decade, the City of Seal Beach has experienced a slight population decline from 25,098 residents in the 1990 Census to 24,157 residents in the 2000 Census. In addition, the implementation of the Hellman Ranch Specific Plan Project would add new single-family homes and generate new residents to the City. The Bixby Assisted Living Project will also provide new residential units for senior assisted living and conventional apartment units for seniors, which will result in an increase of an increase in overall city population as well. As a result, the population for the City at build out is estimated to increase slightly from the present population of approximately 24,157 to 24,810.



Demographic characteristics of Seal Beach have remained stable over the past two decades despite the slight decrease in population in the past decade. Incorporated in 1915 primarily as a farming community, the City has grown to a population of 24,157 in the year 2000 while still maintaining its small-town atmosphere and community values through the enhancement and maintenance of city facilities, buildings, and infrastructure. And by designing and implementing a general plan that preserves the history of the city, while embracing the progress of development and time. The City has been perceived as having a small town feel with a small town like population. This concept shall be preserved and enhanced for future prosperity of the City as suggested by the General Plan Committee.

Building Intensity

As mandated in the state's General Plan Guidelines, local general plans must contain quantifiable standards of building intensity for each land use designation. These standards should identify the most intensive use that will be allowed under each designation. While the land use designation identifies the types of allowable uses, the building intensity standard will identify the concentration of use. Residential building intensity is defined as the number and types of residential use per acre of land. Additional building intensity analysis is provided later in this Element.

“Floor to Area Ratio” (FAR) is defined as the ratio between the amounts of gross floor area permitted to be constructed on a legal building lot and the size of the lot. In computing gross floor area of the building, the gross area confined within the exterior walls of the building shall be considered as the floor area of each floor of the building.

Non-Conforming Structures and Uses

There are existing land uses within the City of Seal Beach that are inconsistent with the provisions set forth in this Element. These inconsistencies fall into two categories, 1) inconsistencies associated with land use, and 2) inconsistencies associated with intensity and density. The alterations and additions to non-conforming structures, along with the continuation of existing non-conforming land uses, are per-



mitted and governed by the Non-Conforming Section of the Seal Beach Municipal Code.



Related Plans and Programs

A number of related plans and programs are considered in the formulation, adoption, and implementation of local land use policy. Related plans and programs are both local and regional in nature. Regional planning agencies such as the Southern California Association of Governments (SCAG) recognize that planning issues extend beyond the boundaries of individual cities. Efforts to address regional planning issues such as air quality, transportation, and affordable housing have resulted in the adoption of regional plans. The form and distribution of development in Seal Beach are affected by regional plans. Relevant local and regional plans related to the Land Use Element are discussed briefly below.

City of Seal Beach Zoning Ordinance

The City of Seal Beach has adopted a Zoning Ordinance and related zoning map. The ordinance has been updated periodically to incorporate land use changes. The Zoning Ordinance is the primary implementation tool for the Land Use Element. Together, the Zoning Ordinance and the zoning map identify specific types of land use, intensity of use, and development and performance standards applicable to specific areas and parcels of land within the City.

Local Coastal Program

The California Coastal Act requires all cities and counties along the California coast to prepare a Local Coastal Program (LCP). An LCP is typically comprised of two components: a Coastal Land Use Plan and Implementing Actions (such as zoning ordinances and maps and identification of sensitive coastal resource areas). Seal Beach drafted a Coastal Land Use Plan in 1983, which was adopted by the City Council at that time. The Plan was submitted to the Coastal Commission for review; however, a number of comments were sent back from the Coastal Commission to the City. The Coastal Commission never adopted the Plan.

A Local Coastal Program (LCP) exists for purposes of the regulation of City territory within the Coastal Zone. The



LCP generally addresses the following topics: public access and recreation, marine and land resources, shoreline structures and hazards, new development, scenic and visual resources, and public works. The LCP is required to conform to the policies of Chapter 3 of the Coastal Act, which sets the standards for review of the LCP governed by *Public Resources Code* §30200. Although closely related to the plans and programs contained within the General Plan, the Local Coastal Program and its components are planned as separate governing documents.

The Coastal Zone Boundary for the City of Seal Beach is depicted in Land Use Map. Seaward of this Coastal Zone Boundary please refer to the Coastal Element and Coastal Zoning Ordinance for regulatory guidance.

Specific Plans

Seal Beach has adopted several specific plans over the years to provide more detailed guidance for specific development sites throughout the City. Specific plans contain specific land uses, site development standards, and plans for circulation and infrastructure systems. Boundary maps for each specific plan are provided at the end of this element. The following adopted specific plans are discussed in greater detail throughout the Land Use Element.

- Main Street Specific Plan
- Pacific Electric Right-of-Way Specific Plan
- Los Angeles Department of Water and Power Specific Plan
- Hellman Ranch Specific Plan
- Boeing Integrated Defense Systems Specific Plan

Orange County Airport Environs Land Use Plan (AELUP)

In accordance with *Public Utilities Code* §21676(a), local planning programs must be consistent with any Airport Environs Land Use Plan (AELUP) adopted by an Airport Land Use Commission, unless specific findings are made that the local planning programs are consistent with the purpose of state airport planning law.



The northernmost portion of Seal Beach abuts the Los Alamitos Joint Forces Training Base (JFTB), which conducts military aviation operations. The Los Alamitos JFTB is addressed in the present AELUP for the county and identifies planning constraints due to noise levels, hazard areas, and height limits associated with local military aviation activities. The Land Use Element and the Safety Element have been drafted for compliance with the current AELUP.

Air Installation Compatibility Use Zone (AICUZ) Study

The AICUZ Study for the Los Alamitos Joint Forces Training Base (JFTB) was completed in June 1995. The document, required by the Department of Defense AICUZ Program, is intended to inform the public and serve as a planning guide for the Department of Defense, the United States Army, the California National Guard, and local governments. The document focuses on identifying and examining impacts on adjacent communities associated with aircraft noise and aircraft accident potential from the Los Alamitos Joint Forces Training Base (JFTB). The main objective of the document is to identify existing or future land uses that are or could become incompatible with flight operations at the JFTB.

SCAG Growth Management Plan

The SCAG Growth Management Plan recommends methods to direct regional growth to minimize traffic congestion and better protect environmental quality. The goals of the Growth Management Plan include balancing jobs and housing. While SCAG has no authority to mandate implementation of its Growth Management Plan, principal goals have implications for the land use composition for Seal Beach. The SCAG goals are generally reflected throughout all of the General Plan elements, including the Land Use Element.

South Coast Air Quality Management Plan

The South Coast Air Quality Management Plan (AQMP) mandates a variety of measures to improve air quality. To comply with the AQMP, the Land Use Element organizes land uses in relation to the circulation system, promotes commercial and industrial land uses with convenient access



to transportation, and provides a balanced Land Use Plan that promotes a favorable relationship between jobs and housing.

California Environmental Quality Act (CEQA) and Guidelines

The California Environmental Quality Act (CEQA) was adopted by the state legislature in response to a public mandate for thorough environmental analysis of projects that might affect the environment. The provisions of state law and environmental review procedures are described in the CEQA Statutes and the CEQA Guidelines. Implementation of CEQA ensures that during the decision-making process for development, City officials and the general public will be able to identify and assess the environmental impacts associated with private and public development.

National Pollution Discharge Elimination System (NPDES)

The City of Seal Beach shall comply with the Clean Water Act and the National Pollution Discharge Elimination System (NPDES) permit program to control water pollution by regulating point sources that discharge pollutants into waters of the United States. Pipes, man-made ditches, septic systems, or sources that do not have a surface discharge of water pollutants are considered point sources that do not require a NPDES permit. However, industrial, municipal, and other facilities must comply with NPDES and obtain permits if their discharge goes directly to surface waters. Since its introduction in 1972, the NPDES permit program is responsible for significant improvements to the Nation's water quality and the City of Seal Beach shall continue to carry out and comply with this effort.



Planning Areas

To better understand the City of Seal Beach, a field and statistical analysis was conducted to evaluate the issues and potentials for the community. To facilitate this analysis and to provide strategic referencing by City staff, the City is strategically divided into five Planning Areas. The Planning Areas enable the City to more specifically determine and consider future development by identifying potential land use issues that exists today or may arise in the future. The following discussion describes each Planning Area and identifies issues unique to each area.

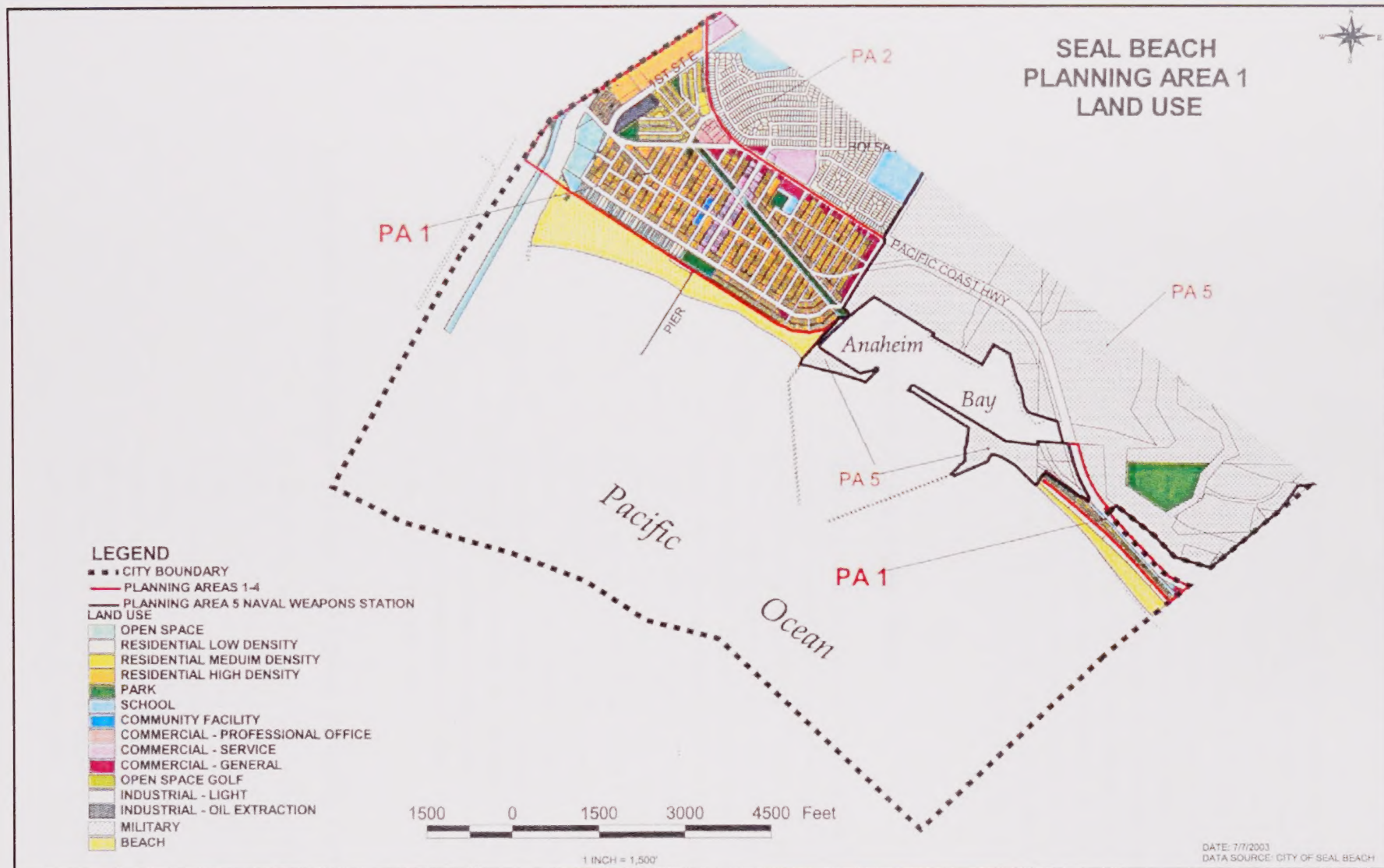
Planning Area 1 - Old Town/Surfside

Planning Area 1 encompasses approximately 331 gross acres of the City. The linear area includes downtown Seal Beach, the Department of Water and Power site, Surfside, and the Sunset Marina Park. Planning Area 1 is situated entirely in the California Coastal Zone. Planning Area 1 boundaries generally include the mouth of the San Gabriel River to the west, Pacific Coast Highway to the north, the communities of Sunset Beach and Huntington Beach to the east, and the Pacific Ocean to the south (Land Use - Figure 1).

Downtown Seal Beach/Main Street Specific Plan

The focal point of downtown Seal Beach is characterized by Main Street, the traditional commercial core of the city. The Main Street area provides for a pedestrian-oriented mix of offices and businesses, surrounded by an area of mixed housing types and institutions. Although it is recognized that the area will have businesses that serve residents and visitors, the goal is to prevent the visitor-serving uses from overwhelming the area at the expense of the small town character. It is also recognized that, when the weather and beach conditions are attractive, the demand for parking may exceed the supply.





Land Use - Figure 1 - Planning Area 1 Land Use Map



A primary issue for the Main Street area and surrounds is to provide for a mix of land uses that remain compatible and serve local and visitor needs. After much public participation, the City Council adopted the Main Street Specific Plan in 1996 to provide a vision document to preserve and enhance the downtown area of Seal Beach. The Main Street Specific Plan provides specific direction regarding allowed land uses and operations, building and design provisions, and parking standards and management, to ensure compatibility between land uses and preservation of the area's small-town character. The boundary of the Main Street Specific Plan is depicted in Land Use - Figure 7 on page LU-75 at the end of this element.

Pacific Electric Right-of-Way Specific Plan

Situated downtown, Electric Avenue follows the abandoned Pacific Electric right-of-way, which is 100 feet wide and approximately 3,600 feet long. This area is slightly over 8 acres in size and is bounded by Electric Avenue (north), Seal Beach Boulevard, Electric Avenue (south), and Marina Drive. The City has acquired the abandoned railroad Right-of-Way (ROW), and a specific plan was prepared and adopted by the City Council. The City adopted the Pacific Electric ROW Specific Plan in 1974. The plan consists of two mini-plazas, a bus stop, a senior citizen center, a public library, a "Red Car" historic museum, a shaded park bench area, a bicycle rest area, and a pedestrian walkway. The remaining ROW consists of a landscaped passive recreational area. The boundary of the Pacific Electric Right-of-Way Specific Plan is depicted in Land Use - Figure 8 on page LU-77 at the end of this element.

Los Angeles Department of Water and Power Specific Plan

Formerly the location of a large power plant for the Los Angeles Gas and Electric Company (now the Department of Water and Power), this site has an excellent view of the Long Beach Marina and northern coastline as far north as Palos Verdes. Considering these positive factors in combination with a high land value (attributed to location and access), this site has potential for visitor-serving land uses and open space land uses. The potential for the development of a hotel use is also deemed feasible for this site.



Particular attention should be given to the question of pedestrian access to the river's edge and to the creation of a landscape walkway and linear buffer along the entire length of the San Gabriel River from Westminster Avenue to the beach.

To provide a comprehensive plan for this area, in 1996 the City revised the Department of Water and Power Specific Plan, which sets forth the land use development plan and general development standards for this area. Visitor-serving uses are limited to the northerly portion of the DWP parcel with permitted uses including a 150-room (maximum) hotel with conference facilities, restaurants, and retail/service uses. The lower portion of the site is designated for open space uses such as public parks, greenbelts, bike, and nature trails, and other passive recreational uses. The boundary of the Los Angeles Department of Water and Power Specific Plan is depicted in Land Use - Figure 9 on page LU-79 at the end of this element.

Surfside Colony

This area is bounded by Pacific Coast Highway, Anderson Street (Sunset Beach), the Pacific Ocean, and the Naval Weapons Station (Anaheim Bay). This residential area was subdivided in the early 1900s into three blocks of small lots as a private, gated community. Originally, small beach cottages were built and used as summer second homes. This area contains approximately 250 low-density residential homes. In recent past, this area has experienced recycling of properties from one-story second home beach cottages to custom three-story year-round residences.

Vehicular access into Surfside Colony is restricted to residents and their guests. Streets within this gated community are not sufficiently wide for simultaneous two-way traffic. The public beach access along the Surfside Colony consists of 3,000 feet (0.56 mile) stretch of sand and beach. The sand beach ocean ward or south on the first row of homes on "A" Row is privately owned for a distance of between 70 and 100 feet. Pedestrian and bicycle access to the beach is available to the public at Anderson Street. Anderson Street is a ± 100 -foot-wide opening for the public to both beaches at Sunset and Surfside and is served by adjacent parking in Sunset Beach.



A small commercial development is located just outside the Surfside Colony gates and is adjacent to Pacific Coast Highway and Anderson Street.

Planning Area 2 - Marina Hill/Hellman Ranch/Boeing

Planning Area 2 encompasses approximately 485 acres of land within the City of Seal Beach. The boundaries of this planning area involve all parcels situated north of Pacific Coast Highway, all parcels located west of Seal Beach Boulevard, all parcels south of Westminster Avenue, and all parcels situated east of the Los Angeles and Orange County jurisdiction boundary line (Land Use - Figure 2).

Marina Hill

The Marina Hill area is bounded by Pacific Coast Highway, Haynes Road, the Hellman Ranch Specific Plan area, and Seal Beach Boulevard. This area was subdivided in the 1950s into 5,000-square-foot lots and is developed with 970 single-family dwelling units. Some of the lots were not developed when the property was subdivided. Over a period of approximately 15 years, custom homes have been built on these lots. In addition to the residential development, there is a neighborhood shopping center fronting on Pacific Coast Highway and one public intermediate school in the area. The most frequent construction activity in this area involves room additions and interior remodeling to existing residences.

Hellman Ranch Specific Plan

The Hellman Ranch Specific Plan site is situated in the center of Planning Area 2. The project specific plan is surrounded by the Boeing Integrated Defense Systems Specific Plan to the north, Marina Hill single-family residential subdivision to the south, Seal Beach Boulevard and Seal Beach Naval Weapons Station to the east, and the Los Angeles/Orange County boundary line to the west.

The Hellman Ranch Specific Plan consists of five Conservation Planning Areas and five Development Planning Areas. The current provisions of the Hellman Ranch Specific Plan are inconsistent with the terms and conditions of the ap-



proved Coastal Development Permit issued by the California Coastal Commission. The City will work with the property owner to have an amended Hellman Ranch Specific Plan submitted for consideration that is consistent with the permit conditions of the California Coastal Commission Coastal Development Permit within 12 months after adoption of the General Plan.

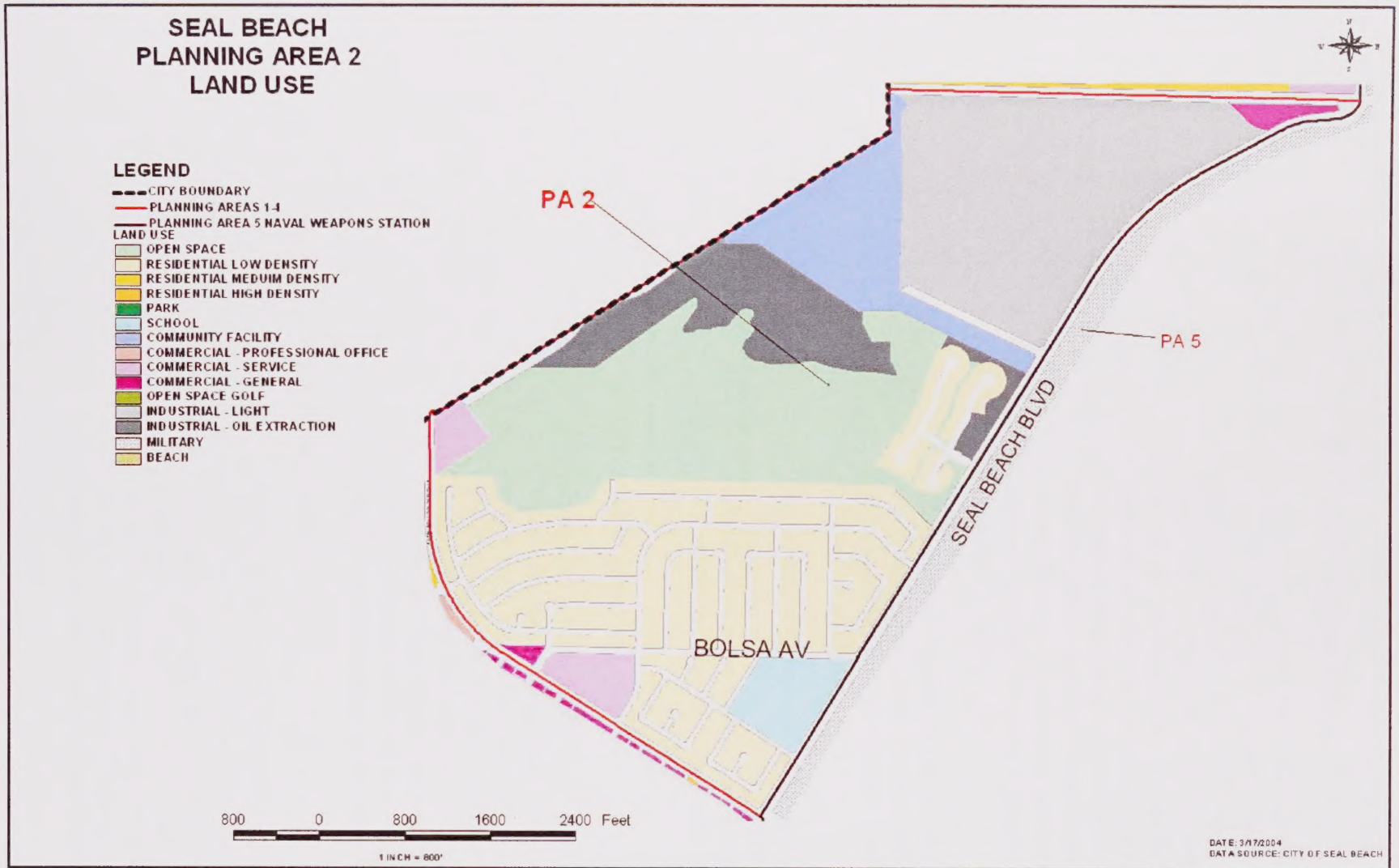
The Conservation Planning Area consists of the enhancement, implementation, and preservation of saltwater marsh wetlands, freshwater wetlands, the Gum Grove Nature Park, and the Los Alamitos Retarding Basin. The Development Planning Area of this Specific Plan consists of land uses, standards, and regulations for single-family residential, mineral operation areas, and public land use. A brief overview of the specific plan's components is analyzed below. The boundary of the Hellman Ranch Specific Plan is depicted in Land Use - Figure 10 on page LU-81 at the end of this element.

- Single-Family Residential

The Hellman Specific Plan consists of a single-family residential gated community that allows for pedestrian access into the community, situated along the eastern portion of the specific plan area along Seal Beach Boulevard. The average lot size is 6,250 sq.ft., with dwelling units ranging from 3,600 to 4,200 sq.ft. of floor area. This residential community is set back a minimum of 260 feet from the nearest jurisdictional wetland area.

The minimum residential lot size within this specific plan shall be 5,000 square feet. The minimum lot width shall be 50 feet. The minimum lot depth shall be 90 feet. The maximum building height shall be 36 feet and shall not exceed three stories. The lot area coverage by the buildings or structures shall not exceed 60 percent of the total lot area.





Land Use - Figure 2 - Planning Area 2 Land Use Map



- Possible Restored Wetlands

A 100-acre portion of the Hellman Ranch Specific Plan area has been deed restricted by the terms and conditions of an approved Coastal Development Permit issued by the California Coastal Commission for 25 years for sale at fair market value to a public agency for the purposes of wetlands restoration, open space, and environmental education purposes. The lowlands area of the Hellman Ranch Specific Plan area contains approximately 27 acres of delineated, albeit severely degraded, wetlands, and these existing wetlands will form the basis for future restoration plans.

The adjacent oil production property (approximately 50 acres) has been similarly restricted, although the 25-year period does not commence until cessation of the oil production activities.

These areas will comprise a portion of a contemplated restoration of the Los Cerritos Wetland Complex and could lead to the eventual restoration of tidal and non-tidal wetlands along the Long Beach/Seal Beach coastline.

- Gum Grove Park

Gum Grove Nature Park is a 14.9-acre urban forest and wilderness park consisting primarily of blue gum eucalyptus trees. The nature setting park, which the general public also uses as a walking and hiking nature park, provides habitat for numerous wildlife. Public access to the expanded Gum Grove Park has been provided along Seal Beach Boulevard as a result of the approval and the implementation of the Hellman Specific Plan.

- Public Access

A staging area and public parking for access to the possible restored wetland area is provided in conjunction with public benefit uses at Pacific Coast Highway and First Street. A pedestrian/bike trail link is also provided to the San Gabriel River trail, providing regional access to the area. Public access to Gum Grove Park is provided at Avalon Street and Seal Beach Boulevard.



- Flood Control Retention Basin

The Orange County Flood Control District (OCFCD) operates the Los Alamitos Retarding Basin. The basin's function is to accommodate runoff from the surrounding watershed. The retarding basin also serves as a habitat for various bird species, although the habitat value is very low.

- Oil Resource Production

Oil production will continue on portions of the property for an indefinite period. The oil production areas have been carefully defined to operate safely and efficiently for drilling, maintenance, and access. All operating wells have been electrified to minimize potential noise impacts. The oil production areas shall be landscaped, screened, and properly buffered from other uses on the site in accordance with the provisions of the Hellman Ranch Specific Plan. There is approximately 50 acres of oil operation designated land use with the City of Seal Beach. All oil production land use designated parcels situated within the 50-acres are deed restricted by the Coastal Commission permit conditions and will be re-designated for the restoration of wetlands upon the closeout of oil and mineral related operations.

- Civic/Public Land Use Areas

Public uses are planned for the City of Seal Beach property at the terminus of Lopez Drive. The property is zoned Public Land Use (PLU). The PLU zoning designation allows for a variety of public uses and City facilities. The property will be partially used for the extension of Lopez Drive, and it is envisioned by the City that public recreational and public civic uses could be considered for the site. The project area currently houses the City of Seal Beach Police Station, the City's Public Works Maintenance Facilities, and the Seal Beach Animal Care Center. Road improvements to Lopez Drive will be completed upon the approval, implementation, and development of the Boeing Integrated Defense Systems Specific Plan.

- California Coastal Act Compliance

The Hellman Ranch Specific Plan is situated within the Coastal Zone Boundary, and a Coastal Development



Permit has been issued by the California Coastal Commission that approved a project that is in compliance with the goals and policies established in the Coastal Act of 1976. Implementation of the project approved by the Coastal Commission is intended to result in the potential future restoration of a degraded saltwater marsh wetlands environment, increased emphasis on visitor-serving uses, increased public access and recreational opportunities, and increased public open space. The current provisions of the Hellman Ranch Specific Plan are inconsistent with the terms and conditions of the approved Coastal Development Permit issued by the California Coastal Commission. The City will work with the property owner to have an amended Hellman Ranch Specific Plan submitted for consideration that is consistent with the permit conditions of the California Coastal Commission Coastal Development Permit within 12 months after adoption of the General Plan.

Boeing Integrated Defense Systems (BIDS) Specific Plan

The Boeing Integrated Defense Systems (BIDS) Specific Plan encompasses 107 acres and is situated in the central western portion of the City. The specific plan is surrounded by Westminster Avenue to the north, Adolfo Lopez Drive to the south, Seal Beach Boulevard to the east, and the Los Alamitos Retarding Basin to the west. This plan provides for development of a business park, combined with hotel and commercial uses, within the existing framework of the existing BIDS headquarters operations. Zoning and development standards are analyzed in a separate document of the BIDS Specific Plan. The boundary of the Boeing Integrated Defense Systems (BIDS) Specific Plan is depicted in Land Use - Figure 11 on page LU-83 at the end of this element.

- BIDS Planning Area 1 - Business Park (Existing Boeing Campus)
- BIDS Planning Area 2 - Business Park
- BIDS Planning Area 3 - Business Park
- BIDS Planning Area 4 - Hotel/Commercial Area



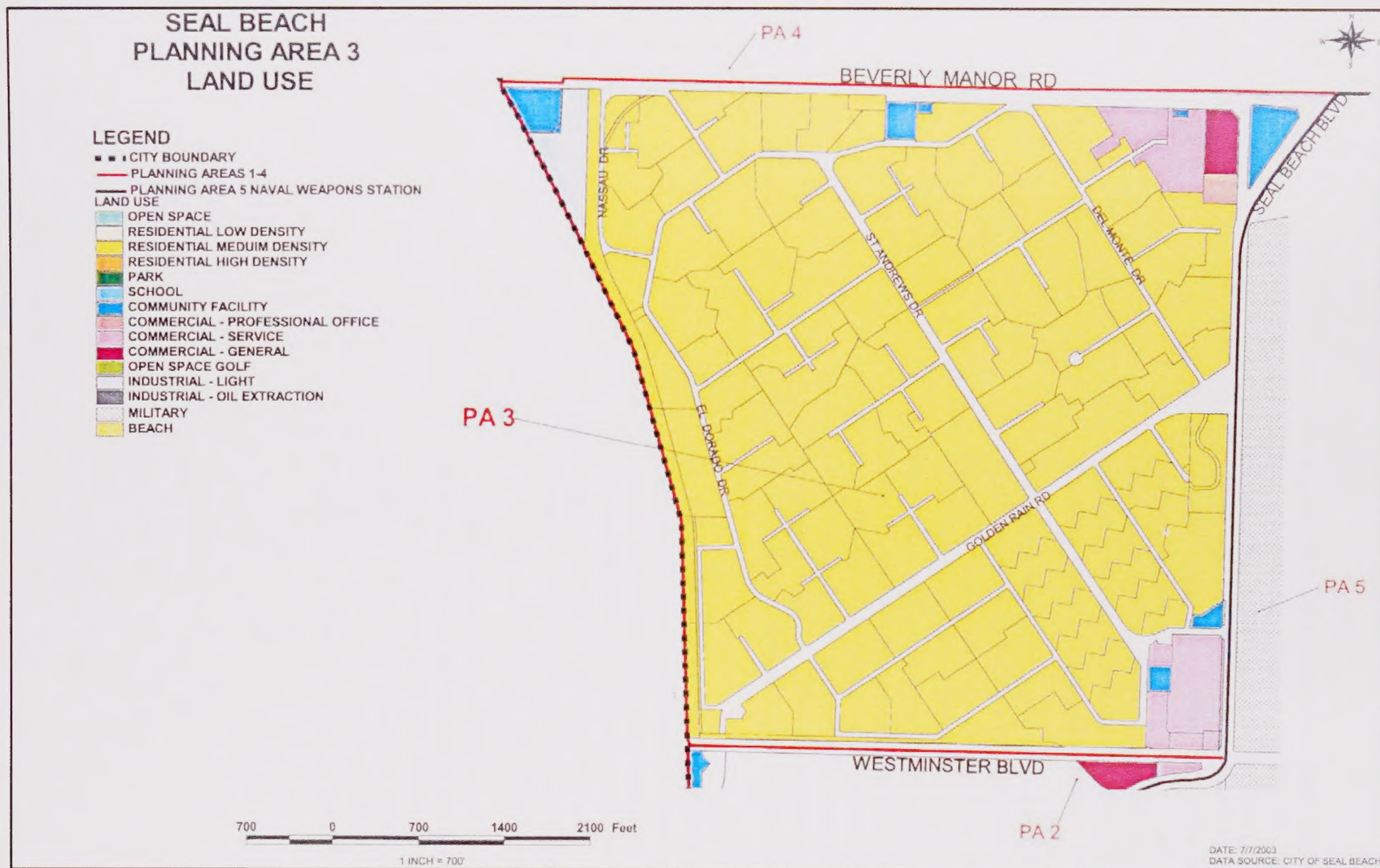
Planning Area 3 - Leisure World

Planning Area 3 encompasses approximately 522 acres of the City. Seal Beach Leisure World Community takes up majority of this planning area and is a self-contained, active retirement community located within the City of Seal Beach. The community is 533 acres, or approximately one square mile, and is bound by the San Diego Freeway to the north, Westminster Boulevard to the south, Seal Beach Boulevard to the east, and the Los Angeles Department of Water and Power Haynes Generating Station and Cooling Channel to the west (Land Use - Figure 3). When construction began in 1960, Seal Beach Leisure World was the first major planned retirement community of its kind in the nation. While retirement communities have experienced growing popularity throughout the country, Seal Beach Leisure World continues to offer its residents high quality, affordable housing and an unparalleled quality of life.

Leisure World is now fully built out, and the housing stock includes 6,482 cooperative apartments and 126 condominiums. A share of stock represents ownership of an apartment within the community, while the condominiums are owned outright. The apartments are available in one- and two-bedroom floor plans, and range from approximately 800 square feet to 1,100 square feet. The condominiums are also available in one- and two-bedroom units. Approximately 9,000 people reside in the community, roughly one-third the total population of Seal Beach. Leisure World is an age-restricted community, and at least one person occupying a unit must be 55 years of age to qualify for residency within the community.

Leisure World features a variety of recreational activities. There are approximately 250 organized clubs within Leisure World that offer a wide range of political, fraternal, service, self-improvement, and hobby organizations. Recreational facilities include a swimming pool, a 9-hole golf course, a 2,500-seat amphitheater, 5 wood working and art studios, lawn bowling, gardening plots, and a professionally equipped library. There are currently 5 clubhouses with a total of 72,000 square feet available to the residents, and plans for a sixth clubhouse are currently in the works. In addition to recreational uses within Leisure World, commercial, medical, and religious uses are available inside the community.





Land Use - Figure 3 - Planning Area 3 Land Use Map



A post office and a realty office serve the residents, along with churches and places of worship for numerous religious groups. The Leisure World Health Care Center is located inside the community and features health care providers that specialize in a wide array of medical fields, including geriatric medicine, cardiology, dermatology, internal medicine, ophthalmology, and neuropsychology. The Health Care Center includes a full-service pharmacy, a clinical laboratory, radiology, and a physical therapy department.

A variety of transportation services are available to Leisure World residents, including a fare-free mini bus with service throughout the community and nearby shopping centers. Transportation on the wheelchair mini-bus is available by reservation, and courtesy transportation is provided from several hospitals in the surrounding area. Transportation is also provided to and from the Rossmoor Shopping Center, located north of the San Diego Freeway on Seal Beach Boulevard, at no cost. Other transportation opportunities are available through charter busses and the Orange County Transit Authority.

The Leisure World Shopping Center is located on the northwest corner of Seal Beach Boulevard and Westminster Avenue. This center is primarily designated as General Commercial, while only a small corner parcel of the center is designated as Service Commercial use. The Leisure World Shopping Center consists of a variety of services ranging from banks, markets, stores, gas stations, and church.

In addition to the Leisure World parcel, located on the southwest corner of Seal Beach Boulevard and the 405 Freeway, this area consists of office buildings, public works facility and various is designated as Professional Office, General and Service Commercial land uses as depicted in the Planning Area 3 Land Use Map (Land Use - Figure 3).



Planning Area 4 - College Park

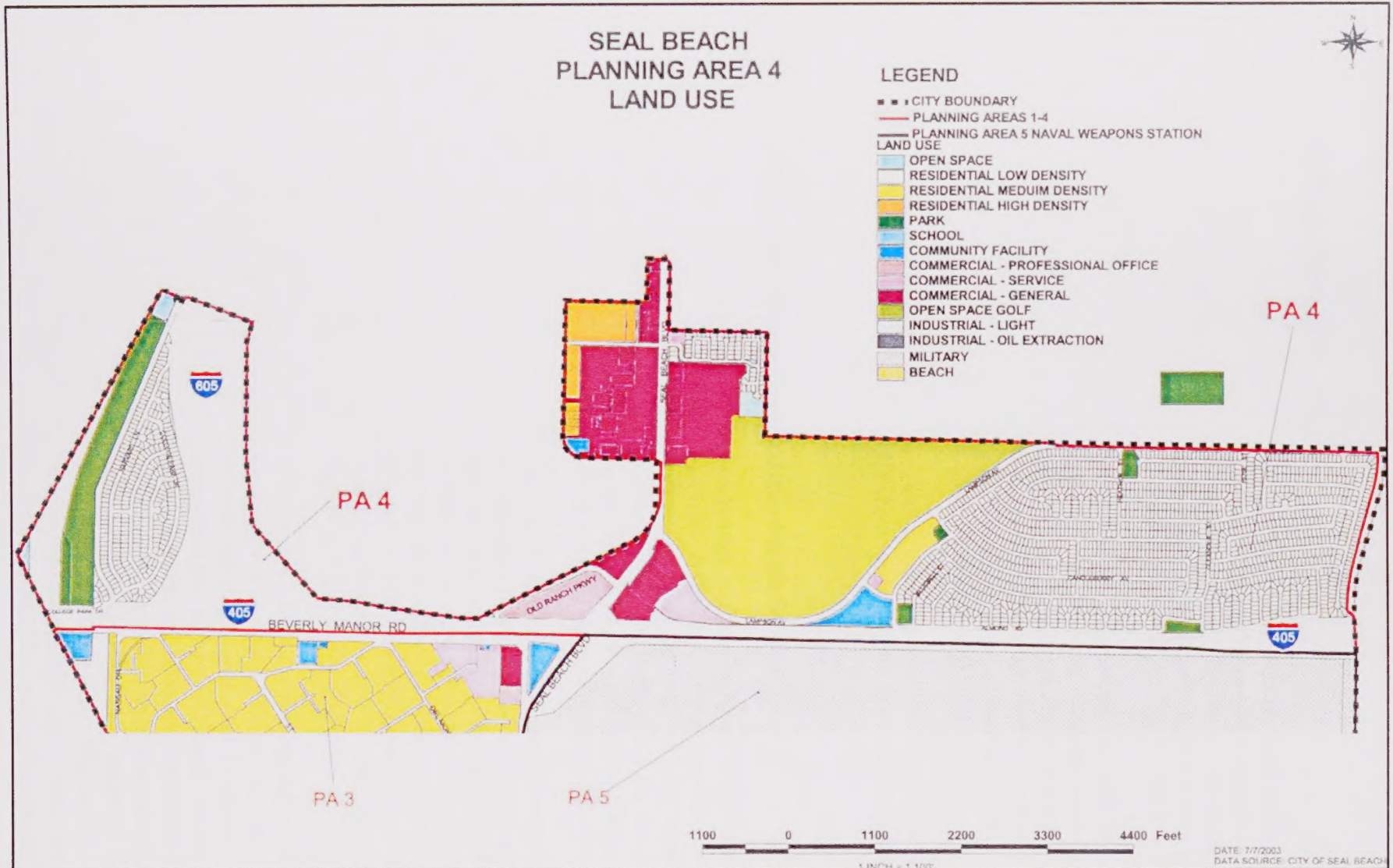
Planning Area 4 encompasses approximately 541 acres of the northernmost area of the City of Seal Beach and is located to the north of San Diego (I-405) and Garden Grove (SR 22) Freeways and is bounded to the west generally by the San Gabriel River and to the east by the Valley View Road (Land Use - Figure 4). The Planning Area is predominantly developed with single-family residential, commercial, and open space/ recreational uses. PA-4 is divided into four development areas: College Park West, College Park East, Old Ranch Towne Center, and Rossmoor Center.

College Park West

College Park West provides for 306 single-family residences with nearby park amenities including Edison Park and College Estates Park. The western edge of College Park West is defined by the San Gabriel River, with only a small park located west of the river. The Edison power easement generally follows the alignment of the river along the east side and provides for regional power distribution lines. The only access to the College Park West neighborhood is through the City of Long Beach by using College Park Drive. This neighborhood is physically and psychologically separated from the rest of the City of Seal Beach by the surrounding freeway system.

Issues for this portion of Planning Area 4 include a lack of identity with the City of Seal Beach. There does appear to be a psychological separation of this district from the City, mainly created by the physical boundaries of the freeways and the river. This does not mean that this problem cannot be resolved by means other than land use planning (e.g., community activities, newsletters, etc.).





Land Use - Figure 4 - Planning Area 4 Land Use Map



College Park East

College Park East is generally bounded by the San Diego Freeway to the south, Lampson Avenue to the west and north, and the City of Garden Grove municipal boundary to the east. The Los Alamitos Armed Forces Reserve Center is located within the City of Los Alamitos to the north.

This neighborhood provides for 1,668 low-density residential dwelling units and is characterized primarily by the development of single-family residences with some attached dwelling units and a 194-unit high-density residential apartment complex. Small neighborhood parks are interspersed within the College Park East neighborhood.

Issues for this neighborhood include potential impacts from freeway widening, noise from vehicle and air traffic, and lack of park space.

Old Ranch Towne Center/Rossmoor Center

This portion of Planning Area 4 is generally bounded by Seal Beach Boulevard and the unincorporated community of Rossmoor to the west, the San Diego Freeway to the south, and the City of Los Alamitos and the Los Alamitos Armed Forces Reserve Center to the north. This area provides for a mix of commercial, recreational, and residential uses.

The Old Ranch Golf Course and Country Club consists of a private golf club with a public driving range. Recreational uses also include a private tennis court facility and neighborhood parks. Mixed commercial, office, hotel, and assisted living uses are located at the southeast corner of Lampson Avenue and Seal Beach Boulevard. An office complex and ancillary restaurant uses are located along Old Ranch Parkway west of Seal Beach Boulevard.

A eucalyptus grove lines the west side of Seal Beach Boulevard north of Lampson Avenue. Two main shopping centers straddle Seal Beach Boulevard: Rossmoor Center (approximately 350,000 SF) and Old Ranch Towne Center (approximately 300,000 SF). Both commercial centers provide large anchor stores while also providing smaller, community-serving retail and service uses. Rossmoor Center was originally established in the early 1960s and is anticipated to continue to redevelop. Old Ranch Towne Center has recently been constructed. The existing Seal Beach Boulevard bridge



crossing the San Diego Freeway has capacity limitations that should be considered prior to approval of any additional development within Planning Area 4.

Approximately 194 condominium dwelling units are located along the west side of Rossmoor Center. North of Old Ranch Towne Center, 78 single-family homes were constructed in 2001 and 2002. Also located adjacent to Rossmoor Center are the City of Seal Beach Community Center and Los Alamitos/Rossmoor Branch of the Orange County Public Library.

Planning Area 5 - Naval Weapons Station, Wetlands & Wildlife Refuge

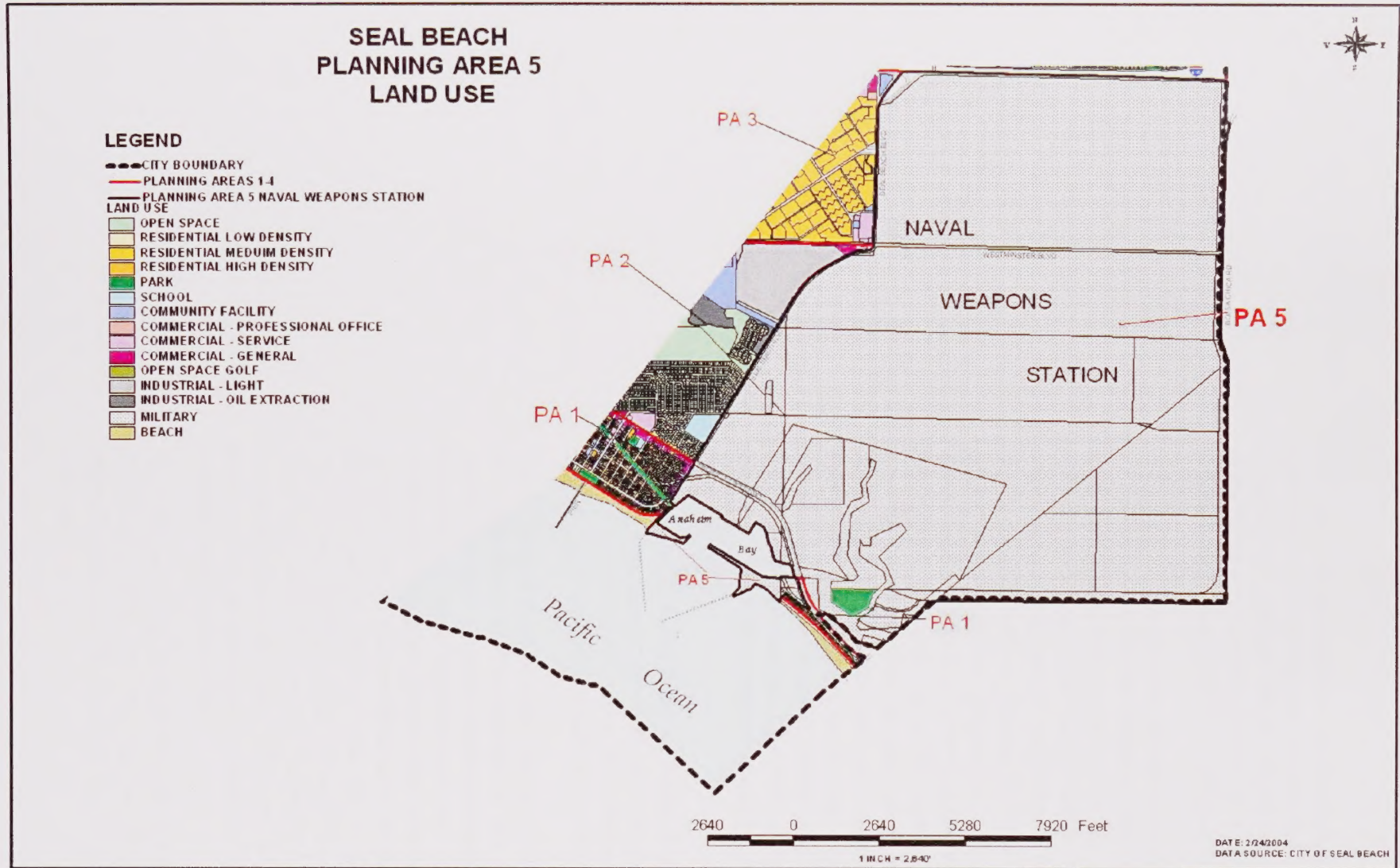
U.S. Naval Weapons Station, Seal Beach

In the early 1940s, with the United States' entry into World War II, the demand for an ammunition handling and storage facility in the Southern California Area to service the Pacific Fleet was recognized. This resulted in increased shipping out of the San Diego and San Pedro harbors. Plans for a water-side naval weapons facility at Seal Beach and Anaheim Bay were finalized in December 1943, and operations began in November 1944.

During the 1950s Orange County began to experience the impacts of urban sprawl, which extended southwards from Los Angeles. The land adjacent to the station, which was predominantly agricultural use, began to be developed as residential use.

Planning Area 5 consists of the bulk of the City's landmass, with 5,256 acres owned and operated by the Department of the Navy since it was acquired in 1944 (Land Use - Figure 5). The Seal Beach Naval Weapons Station is the largest and most important naval ordnance storage, maintenance, production, and supply facility in the Western United States.





Land Use - Figure 5 - Planning Area 5 Land Use Map



The Naval Weapons Station site has experienced pressure for use of the land assets by non-governmental and occasionally governmental agencies. These non-mission-related interests in the 5,256-acre parcel have been especially acute due to its seaside location surrounded by urbanized metropolitan areas.

Over the past two decades, urbanization surrounding the naval station has resulted in increasing land use conflicts. The naval station is surrounded by residential, commercial, industrial, and open space. This has resulted in the increase of potential safety threats and the possibility of interfering with missions due to land use incompatibility affecting the safety, security, and operational support requirements associated with the daily functions of a naval weapons station. The Seal Beach Naval Weapons Station has established strategies to maintain and ensure that the surrounding land uses outside Planning Area 5 minimize land use compatibility conflicts. This is primarily accomplished through regular communication with local jurisdictions to discuss issues of mutual concern and implementing the Land Use Compatibility Review Checklist to provide a basis for evaluating requests for use of Navy property.

The Seal Beach Naval Weapons Station consists of over 280 building structures on-site with approximately 1,506,707 square feet of total floor area. These structures are divided between active operational and storage uses.

The 5,256-acre naval weapons station and the 920-acre wildlife refuge comprise Planning Area 5. The Anaheim Bay Harbor provides a strategic ordnance transfer facility, which is possibly the most important west coast point for supplying the United States Navy Pacific Fleet with vital ordnance. Naval vessels and civilian recreational boats share the Anaheim Bay inner harbor. This bay is the only navigable ocean access for civilian recreational boats leaving from the adjacent Huntington Harbor Complex, the Sunset Marina Park, and local public launch facilities. This inner harbor often becomes heavily congested with recreational boat traffic, particularly during the summer.

As of January 2003, the Seal Beach Naval Weapons Station continues to serve and operate as the major West Coast distribution point for Naval and Marine Corps munitions and ordnance.



It is recognized that the Seal Beach Naval Weapons Station, which contains large expanses of open, undeveloped land, constitutes a unique situation in a predominantly urban setting. It is a goal of the City to work and cooperate with federal interests to ensure preservation of this area's natural assets. Preserving the marshlands and wetlands in a pristine state is considered to be a matter of significance.

Seal Beach National Wildlife Refuge/Wetlands

Approximately 920 acres of the Planning Area 5 are dedicated to the tidal wetlands of the Seal Beach National Wildlife Refuge. The low coastal wetlands consist of a complex ecological system critical to numerous bird species. More than 200 bird species have been identified in this area that serves as valuable wildlife habitat. All forms of bird species throughout the year extensively utilize the tidal channel and mudflat habitats. There are five endangered and/or threatened bird species.

The topography throughout the site is flat, gaining only 25 feet above sea level at the highest point. This entire area is excluded from all development activities, which includes the local government and the military. All decisions for this refuge area require joint U.S. Navy and U.S. Fish and Wildlife Service approval. Alterations to the refuge are only permitted if balanced with on-site and off-site mitigation measures.

All areas under direct tidal influence, as well as those supporting wetland vegetation adjacent to areas of tidal influence, constitute existing wetlands and are subject to the regulation of the U.S. Army Corps of Engineers (Clean Water Act, Section 404) and the California Department of Fish and Game (California Fish and Game Code, §1600). The majority of the classified wetlands are located within the National Wildlife Refuge boundary, with the exception of two small areas just west of and outside the refuge boundary.

Petroleum extraction activities have been and are currently being conducted by private companies within Planning Area 5. The largest oil operation facility is situated in the center of the National Wildlife Refuge.



Sunset Marina Park

The Sunset Marina Park is a passive park situated within the City limits of Seal Beach and is operated by the County of Orange. Sunset Marina Park is situated within the Sunset Marina, which consists of a commercial dock with a capacity of 276 boat slips, a marine repair yard, a boat launch area, parking lots, Harbor Police Patrol office, and public park/picnic area.

Coastal Zone Management

Approximately 3,280 acres out of the 5,256-acre Planning Area 5 are situated within the California Coastal Zone Boundary. However, under the Federal Coastal Zone Management Act, all federal lands within the coastal zone are exempted from LCPs and local government permit authority. Projects on federal lands are required to only be consistent to the maximum extent feasible with state programs. Therefore, projects located within the Naval Weapons Station site are not subjected to local or state coastal development requirements. The California Coastal Commission (CCC) serves in an advisory and review role for projects proposed on federal lands within the coastal zone boundary. Federal projects within the designated coastal boundaries would require submittal of an application to the CCC for preliminary Coastal Consistency Determination on an individual project basis. However, final project approval resides solely with the U.S. Department of Navy.



Goals, Objectives, and Policies

This section provides goals, objectives, and policies organized by Planning Area. Existing policies have been brought forward from previous General Plan amendments, and policies have been updated or augmented to address issues as identified for each Planning Area.

Features of the Community

Despite an increase in regional population experienced throughout the surrounding metropolitan area, the City of Seal Beach has experienced a slight decline in population while maintaining its own identity and preserving its unique character. Seal Beach's individual small-town identity is due to its physical separation from various centers of urban development found in surrounding cities.

People have been attracted to Seal Beach primarily due to its unique geographical location, educational opportunity, attractive beaches, ideal climate, and small town friendly character. A goal of the City is to maintain and promote those social and physical qualities that enhance the character of the community and the environment in which we live.

Waterfront

Seal Beach's coastal setting distinguishes it from any adjacent coastal communities. The shoreline, one of the City's most valuable assets, shall be maintained and improved to provide maximum benefits to residents and visitors. Preservation of the ecological balance of the waterfront and the marshlands should be considered during review of any proposed developments in this planning area. In addition, the City of Seal Beach shall actively identify and resolve issues in the preservation and the more efficient utilization of the existing pier parking lots to better serve the community and beach patrons.



Parks, Recreation, and Community Beautification

An important goal of the City should be to acquire and develop recreational facilities at strategic locations throughout the community. Because open land is rapidly being developed, acquisition of park sites should be accomplished at the earliest date. Development and maintenance of these sites should follow in a relatively short period of time. The City should cooperate with other governmental agencies to promote a comprehensive plan of park acquisition and development.

A master plan should be developed for street tree planting and other community beautification programs with emphasis on major arterials entering the City.

Population

Seal Beach has experienced a decrease in population of 3.7% during the past decade. Despite the minor decrease in City population experienced in the 2000 U.S. Census, the City will continue to provide support for its residents, maintain its infrastructure and provide jobs and housing balance while still maintaining its small town atmosphere.

Housing

For more than half a century, Seal Beach has grown and developed. As a result, neighborhood identity is visible in the types of residential structures that have been constructed within various sections of the community. It is to be a goal of the City to preserve its low- and medium-density residential character while still providing a wide choice of living accommodations and life styles for its residents.

Commercial

The City should explore available means to support, encourage, and balance commercial development within the city. Local, state, and federal facilities should be developed and maintained within or adjacent to business areas in the City.

The adoption of the 1996 Main Street Specific Plan was mainly driven by the City and its community's desire to envi-



sion a viable and productive commercial area by establishing specific detailed land uses and design guidelines to ensure the continue success of its commercially designated areas. In addition, the City has recently approved and permitted the development the Old Ranch Towne Center and the rehabilitation of the Rossmoor Center within Planning Area 4. Upon its completion, tenants such as Target, Kohl's Department Store, Ralph's Market, Ayers Hotel, and Bed, Bath and Beyond will help stimulate the overall growth and prosperity of the City. The implementation of the Boeing Integrated Defense Systems Specific Plan will provide additional commercial developments and hotel facilities, thereby resulting in the City coming closer to the complete build out of the City. The Boeing Integrated Defense Systems Specific Plan allows for the development of light industrial, hotel, and commercial uses within the Boeing property site.

Public Facilities

The City should anticipate and maintain public service demands. Future development of schools, libraries, and municipal facilities should be located in such a manner as to provide the maximum level of service to all members of the community and to promote the objectives of the City.

Industry

Seal Beach should encourage development of non-noxious industrial land uses, such as research and development and other light industrial uses, in areas where such activities would be compatible with existing land uses. The City does recognize the advantages of industrial land uses for they provide jobs for city residents and contributing to the tax base of the community.

Upon the adoption of the Boeing Integrated Defense Systems Specific Plan, an additional 973,000 square feet of new gross floor area will be created. The combined gross floor area of the existing and proposed development will result in a maximum gross floor area of 2,210,500 square feet of light industrial and commercial uses on a 107-acre parcel. In addition, it is estimated that the Boeing Integrated Defense Systems Specific Plan will generate approximately 2,000 additional jobs.



Circulation

Seal Beach should carefully consider the development of freeways, and/or rapid transit systems and endorse such proposals only when it is considered to be in the community's best interest. Efforts should be made to improve traffic circulation in the coastal section of the City and along major arterial streets, but not exclusively private auto vehicular traffic.

Annexation

In the event annexation issues were to arise in the future, the City of Seal Beach shall only consider the annexation of unincorporated territories, or requests by unincorporated areas for annexation, when such action would be beneficial to all parties involved. Currently, the City has no officially designated "sphere of influence" land use areas and there are no current plans to annex any adjoining unincorporated areas from the County of Orange or from its neighboring municipalities.

Planning Area 1 - Old Town/Surfside

Downtown Seal Beach/Main Street Specific Plan

- Encourage a mix of land uses, including offices, businesses, and retail stores to serve local residents and visitors.
- Regulate visitor-serving uses so as to not overwhelm the area at the expense of small town character.
- Prepare building and design provisions to enhance the pedestrian orientation of Main Street and ensure that the surrounding area is maintained.
- Encourage architectural and economic diversity.
- Develop standards and processes to ensure compatibility and balance between residential and commercial uses.
- Establish a parking program to address local resident and visitor needs to ensure and to minimize potential traffic safety impacts, pedestrian-vehicle conflicts, and parking impacts.



Pacific Electric Right-of-Way Specific Plan

- The maintenance and enhancement of the Pacific Electric Right-of Way, its greenbelt, library, senior center and the Red Car Museum shall be required in order to sustain and promote the numerous community amenities provided by the City.

Los Angeles Department of Water and Power Site Specific Plan

- Provide a comprehensive plan for this area providing for a mix of visitor-serving uses and open space.
- Limit visitor-serving uses to the northern portion of the DWP parcel site with permitted uses including a hotel with conference facilities, restaurants, and retail/service uses.
- Designate the southern portion of the site for open space uses such as public parks, greenbelts, bike, and nature trails, and other passive recreational uses.
- Limit access to the visitor serving uses to Marina Drive, west of First Street.
- Coordinate plans for use of the San Gabriel River right-of-way with the County of Los Angeles.

Surfside

- Ensure that redevelopment is compatible with the physical characteristics of its site, surrounding land uses, and available infrastructure.
- Maintain public beach access at the ± 100 -foot-wide opening located at the end of Anderson Street.

Planning Area 2 - Marina Hill/Hellman Ranch/Boeing

Marina Hill

- Ensure that the remodeling and replacement of existing homes is compatible with the physical characteristics of the neighborhood, surrounding land uses, and available public infrastructure.



Hellman Ranch Specific Plan

- Maintain significant acreage for restoration/creation of wetlands and plan for long-term retention of viable wildlife habitat and biodiversity on the site.
- Create/restore a wetlands and environmental ecosystem that provides a meaningful contribution to the regional system of coastal wetlands and open space along the Pacific Flyway.
- Protect and improve water quality of the wetlands by re-directing existing urban runoff.
- Develop a plan utilizing the potential of re-directing water stored in the Los Alamitos Retention Basin through the restored wetland area as a filtration system to provide additional water quality improvements.
- Respect the property's physical constraints.
- Preserve and enhance the open space and create public access opportunities.
- Provide visitor-serving recreational opportunities within the coastal zone that will contribute to the economic base of the City of Seal Beach.
- Create an effective system of open space, trails, and parks.
- Allow for the continued operation of oil extraction facilities on the property until such production ceases and the terms of the existing deed restriction are implemented.

Boeing Integrated Defense Systems (BIDS) Specific Plan

- Provide for comprehensive land use and infrastructure planning, while respecting the physical and existing BIDS operational constraints of the site.
- Create a cohesive identity for the Specific Plan area, and provide a consistent project theme, development standards, and design guidelines that allow design flexibility to better respond to market needs.
- Promote high quality design and well ordered spatial relationships among buildings and land uses.
- Unify the Specific Plan area through the implementation of a consistent landscape and architectural and street scene program; and create a comprehensive signage system that includes identification, directions, and information.



tion, which is appropriate for the Specific Plan area and the overall community.

- Establish an efficient pattern of local circulation, vehicular and pedestrian, that will also provide linkage between the project area and the surrounding community.
- Provide for water quality treatment of urban runoff for new development.
- Implement the policies of the Seal Beach General Plan for the project site and vicinity through the Specific Plan process.
- Increase connectivity within the Specific Plan area, and provide a planning framework that responds to the physical and market driven aspects of future development opportunities.
- Encourage the expansion of a range of employment opportunities within the City of Seal Beach by combining light industrial, manufacturing, research, and development, commercial, and office land uses in close proximity to similar existing uses.
- Allow business park uses that provide point of sale opportunities, and provide for a commercial planning area allowing for hotel and retail land uses.
- Encourage revitalization and reuse within the project area in a logical, systematic manner, compatible with existing BIDS operations.

Planning Area 3 - Leisure World

- Coordinate planning activities with Leisure World representatives.
- Ensure that adequate public services are provided for residents, such as emergency response and ambulance services.

Planning Area 4 - College Park

College Park West

- Provide for outreach to this area of the community, such as through community activities and newsletters to help provide a stronger psychological link to the other areas of Seal Beach.



College Park East

- Protect the existing population and character of older areas subject to rehabilitation and redevelopment.
- Seek opportunities to enhance parkland and recreational amenities of in this area.

Old Ranch Towne Center/Rossmoor Center

- Encourage the location and retention of large anchors and community-serving businesses within these areas.
- Preserve the eucalyptus grove along the east side of Seal Beach Boulevard. If any removals are necessary, require the replacement of removed trees.
- Encourage the redevelopment of older commercial development within the Rossmoor Center.
- Encourage preservation of the existing public and private recreational facilities and seek opportunities to enhance parkland and recreational amenities within the planning area.
- Discourage pass-through traffic on Saint Cloud Street by minimizing driveways from Rossmoor Center.
- Evaluate proposed uses for the Old Ranch Towne Center and Rossmoor Center for compatibility with adjacent residential uses and Los Alamitos JFTB operations.
- Coordinate bridge widening and lengthening at Seal Beach Boulevard over the San Diego Freeway. An appropriate design to widen the bridge has been prepared but long-term lengthening of I-405 overpass is contemplated as part of a carpool project by Caltrans and OCTA. Coordinate timing of project to avoid having to reconstruct bridge twice.
- Discourage further encroachment onto the Los Alamitos JFTB flight path.

Planning Area 5 - Naval Weapons Station and Marshlands/Wetlands

U.S. Naval Weapons Station, Seal Beach

Understanding that any and all activities within the boundaries of the naval Weapons Station are at the full discretion and authority of the U.S. Navy, the City and Navy should



jointly discuss, review and coordinate City and Navy projects to ensure base security, compatibility with adjoining areas and environmental sensitivity. The City has no permit issuances or approval processes for any activities on the Weapons Station.

The City will work with the Department of Navy in a cooperative manner as the Navy considers and implements programs to accomplish the following goals and policies of the Department of Navy:

- Support the Station's mission by providing needed facilities that will allow for future expansion requirements. Priority should be given to those functions most directly related to the Station's primary mission.
- Establish a logical and functional land use plan that maximizes the utilization of real estate, improves installation efficiency, promotes land use compatibility, and permits future expansion.
- Identify deficiencies in existing facilities and provide recommendations that will solve site and Complex-wide constraints.
- Consult in the development of each site in a way that is compatible with the surrounding community and that recognizes all natural and man-made constraints.
- Anticipate encroachment pressure before events occur that may compromise mission effectiveness.
- Comply with all applicable federal and, when applicable, state and local planning directives that guarantee the public's safety and the protection of environmental resources.
- Incorporate and evaluate findings from other studies, and document an existing conditions database.
- Improve the quality of life for military and civilian personnel by improving the working and living environment through proper planning.
- Consult to ensure that all physical security standards are incorporated into the planning and design of new facilities.
- Propose new facilities that are sited to take advantage of existing infrastructure and circulation systems, to avoid duplication of expenditures.



- Develop a Capital Improvement Plan (CIP) with appropriate recommendations for phasing that will accommodate anticipated development projects in terms of temporal, financial, and physical constraints.

Seal Beach National Wildlife Refuge/Marshlands

- Work and cooperate with federal interests to ensure preservation of this area's natural assets. Preserving the marshlands and wetlands in a pristine state is considered to be a matter of significance.
- Develop constructed wetlands on Navy property to improve wastewater runoff quantity as it drains to Anaheim Bay.
- Improve open space habitat on non-essential navy acreage as buffer zones adjacent to the Wildlife Refuge.

Sunset Marina Park

- Support the continuing provision of recreational opportunities offered by the County owned and operated Sunset Marina Park.
- Coordinate with the County of Orange regarding programs offered at this facility and intensity of use.

Land Use Plan Designations

A general plan land use designation recognizes the type and nature of development permitted in a given location within a city. The following are clear and concise description of land use categories as required by the State General Plan Guidelines.

The City of Seal Beach Land Use Element contains 17 land use designations under the over-arching land use categories of Residential, Commercial, Industrial, Public, Quasi-Industrial, and Military:

Residential

- Residential Low-Density (RLD)
- Residential Medium-Density (RMD)
- Residential High-Density (RHD)



Commercial

- Limited Commercial
- Professional Office Commercial
- Service Commercial
- General Commercial

Industrial

- Light Industrial
- Oil Extraction

Public

- Park
- School
- Open Space
- Community Facility
- Wildlife Refuge

Quasi-Public

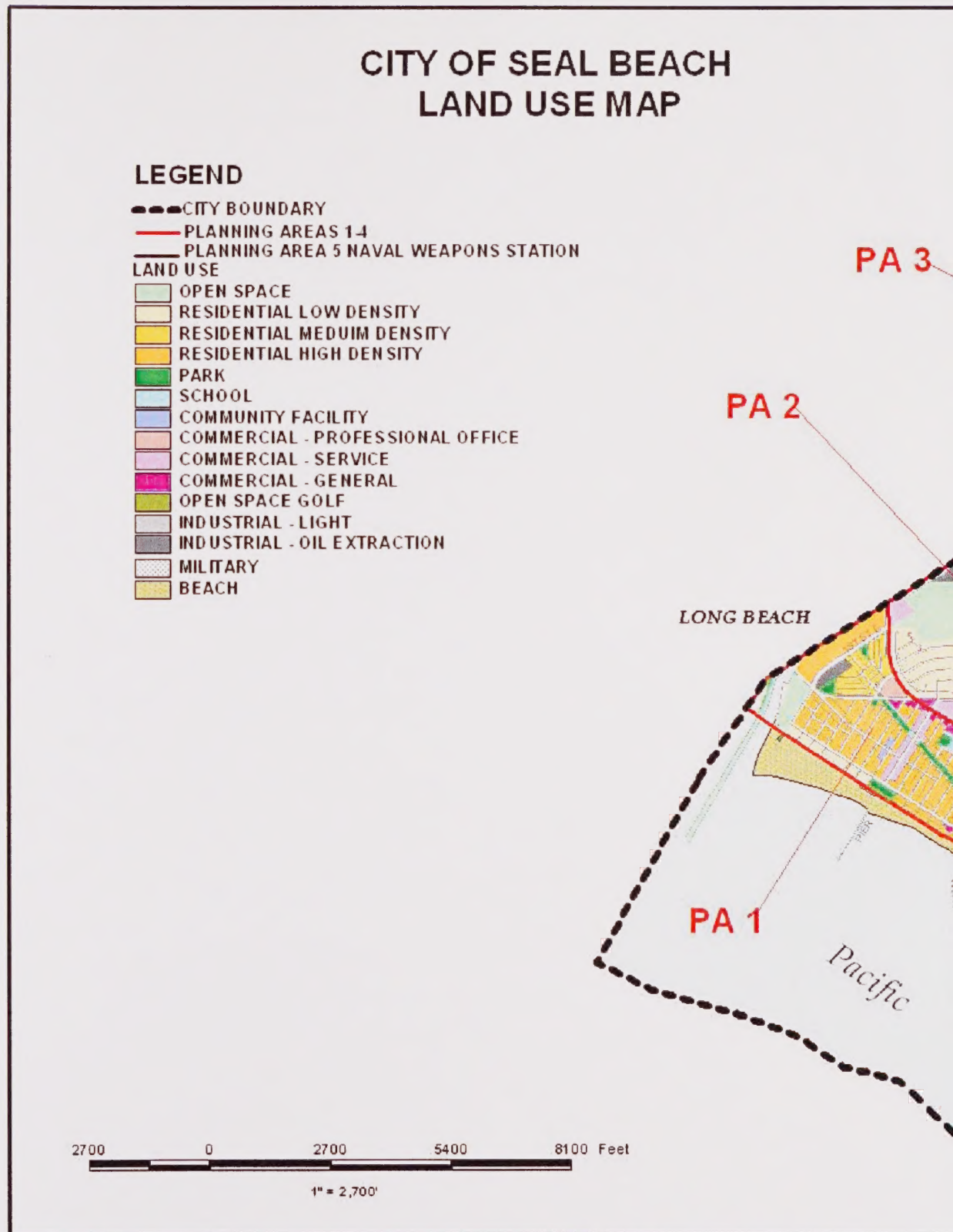
- Open Space/Golf Course

Military

- Military

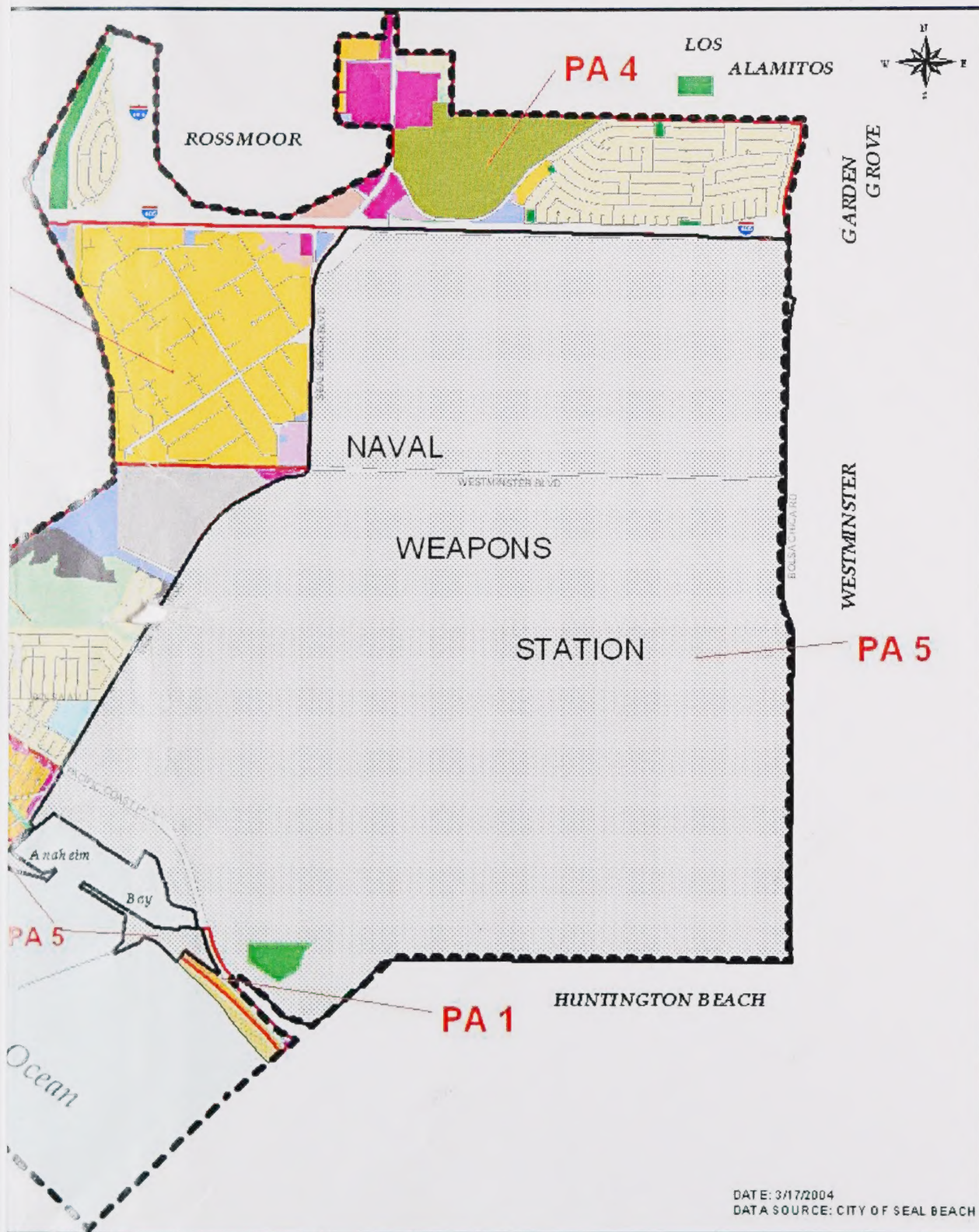
These land use designations are shown in the General Plan Land Use Map (Land Use - Figure 6 - City of Seal Beach Land Use Map) and in Land Use - Table 1 - Land Use Intensity/Density Standards. In addition, a summary of acreage by land use is provided in Land Use - Table 2 - Land Use Summary, which also breaks out acreage for existing and vacant land.





Land Use - Figure 6 - City of Seal Beach Land Use Map





Land Use - Table 1 - Land Use Intensity/Density Standards

Land Use Designation	Minimum Lot Area	Building Intensity Dwelling Units per Acre (DU/Acre)*	Density (Persons/acre)**
Residential			
Low-Density Residential	5,000 sq. ft.	9.0 DU/Acre	16.5
Medium-Density Residential	2,500 sq. ft.	17.0 DU/Acre	31.0
High-Density Residential			
Planning Area 1	2,178 sq. ft.	20.0 DU/Acre	36.6
Planning Area 2, 3	1,350 sq. ft.	32.2 DU/Acre	58.9
Planning Area 4	960 sq. ft.	45.3 DU/Acre	82.8
Commercial			
Professional Office	7,000 sq. ft.	0.50-0.60 FAR	1 Employee/ 300 sq. ft.
Service Commercial	7,000 sq. ft.	0.60-0.75 FAR	1 Employee/ 333 sq. ft.
General Commercial	7,000 sq. ft.	0.60-0.80 FAR	1 Employee/ 450 sq. ft.
Industrial			
Light Industrial	10,000 sq. ft.	0.70 FAR	1 Employee/ 470 sq. ft.

Notes:

* The development intensity standard indicates the theoretical "maximum" allowable development permitted for each specific land use designation (DU=dwelling units; FAR=floor area ratio). All proposed development must also adhere to the City's zoning code and/or regulations established in a specific plan.

** U.S. 2000 Census Data-(City of Seal Beach averages 1.83 persons per household)

*** California State Office of Planning and Research



Land Use - Table 2 - Land Use Summary

Designation	Proposed/ Developed (acres)	Undeveloped (acres)	Total Acres
Residential			
Low	353.7	0.0	353.7
Medium	505.4	0.0	505.4
High	166.4	0.0	166.4
Commercial			
Professional Office	16.4	0.0	16.4
Service	49.3	0.0	49.3
General	75.4	18.0	93.4
Industrial			
Light	67.0	50.0	117.0
Oil Extraction	54.6	0.0	54.6
Open Space			
Open Space	0.0	42.7	42.7
Golf Course	156.8	0.0	156.8
Wetlands & Wildlife Refuge	100.0	920.0	1020.0
Park	65.4	19.0	65.4
School	15.3	0.0	15.3
Community Facility	61.8	0.0	61.8
Military	4336.0*	0.0	4336.0*
Beach	0.0	80.3	80.3
Total	6023.5	1111.0	7134.5

*does not include Wildlife Refuge



Land Use - Table 3 - Aggregated Land Use Categories

Land Use Category	Acres	% of Total
PLANNING AREA 1 (PA 1)		
Open Space	26.8	8.0%
Residential Low Density	8.9	2.7%
Residential Medium Density	19.9	6.0%
Residential High Density	150.7	45.5%
Park	13.6	4.1%
School	1.6	0.48%
Community Facility	1.4	0.42%
Commercial - Professional Office	3.8	1.1%
Commercial - Service	9.2	2.8%
Commercial - General	10.2	3.2%
Open Space - Golf	0.0	0.0
Open Space - Wetlands	0.0	0.0
Industrial - Light	0.0	0.0
Industrial - Oil Extraction	4.6	1.4%
Military	0.0	0.0
Beach	80.3	24.3%
TOTAL	331.0	100.0%
PLANNING AREA 2 (PA 2)		
Open Space	9.3	1.9%
Residential Low Density	127.6	26.3%
Residential Medium Density	0.0	0.0
Residential High Density	0.0	0.0
Park	19.8	4.0%
School	13.7	2.8%
Community Facility	41.6	8.6%
Commercial - Professional Office	0.0	0.0
Commercial - Service	12.1	2.5%
Commercial - General	0.8	0.2%
Open Space - Golf	0.0	0.0
Open Space - Wetlands	100.0	20.6%
Industrial - Light	110.0	22.7%
Industrial - Oil Extraction	50.0	10.3%
Military	0.0	0.0
Beach	0.0	0.0
TOTAL	484.9	100.0%
PLANNING AREA 3 (PA 3)		
Open Space	0.1	0.019%
Residential Low Density	0.0	0.0
Residential Medium Density	478.3	91.7%
Residential High Density	0.0	0.0
Park	0.0	0.0
School	0.0	0.0
Community Facility	10.7	2.0%



Land Use Element

Land Use Category	Acres	% of Total
Commercial - Professional Office	1.5	0.29%
Commercial - Service	20.9	4.0%
Commercial - General	3.2	0.61%
Open Space - Golf	0.0	0.0
Open Space - Wetlands	0.0	0.0
Industrial - Light	7.0	1.3%
Industrial - Oil Extraction	0.0	0.0
Military	0.0	0.0
Beach	0.0	0.0
TOTAL	521.7	100.0%
PLANNING AREA 4 (PA 4)		
Open Space	6.5	1.2%
Residential Low Density	217.2	40.1%
Residential Medium Density	7.2	1.4%
Residential High Density	15.7	2.9%
Park	32.0	5.9%
School	0.0	0.0
Community Facility	8.1	1.6%
Commercial - Professional Office	11.1	2.1%
Commercial - Service	7.1	1.3%
Commercial - General	79.2	14.6%
Open Space - Golf	156.8	28.9%
Open Space - Wetlands	0.0	0.0
Industrial - Light	0.0	0.0
Industrial - Oil Extraction	0.0	0.0
Military	0.0	0.0
Beach	0.0	0.0
TOTAL	540.9	100.0%
PLANNING AREA 5 (PA 5)		
Open Space	0.0	0.0
Residential Low Density	0.0	0.0
Residential Medium Density	0.0	0.0
Residential High Density	0.0	0.0
Park	0.0	0.0
School	0.0	0.0
Community Facility	0.0	0.0
Commercial - Professional Office	0.0	0.0
Commercial - Service	0.0	0.0
Commercial - General	0.0	0.0
Open Space - Golf	0.0	0.0
Open Space - Wetlands	0.0	0.0



Land Use Element

Land Use Category	Acres	% of Total
Industrial - Light	0.0	0.0
Industrial - Oil Extraction	0.0	0.0
Military	5256	100.0%
Beach	0.0	0.0
TOTAL	5275.2	100.0%
CITY OF SEAL BEACH		
Open Space	142.7	2.0%
Residential Low Density	353.7	5.0%
Residential Medium Density	505.4	7.0%
Residential High Density	166.4	2.3%
Park	65.4	.9%
School	15.3	0.2%
Community Facility	61.8	0.9%
Commercial - Professional Office	16.4	0.2%
Commercial - Service	49.3	0.7%
Commercial - General	93.4	1.3%
Open Space - Golf	156.8	2.2%
Industrial - Light	117.0	1.6%
Industrial - Oil Extraction	54.6	0.8%
Military	5256	73.7%
Beach	80.3	1.1%
TOTAL	7134.5	100.0%



Residential Land Use

Introduction

Residential uses take many forms, varying from single-family homes, townhouses to apartment complex. The main differences between each residential land use designation correlate to how each unit is designed and at what building intensity are they permitted to be built at given a specific setback requirement for each specific residential land use designation.

Low Density Residential Proposals (minimum lot area of 5,000 square feet per dwelling unit)

This density classification allows for the typical subdivision patterns found throughout Southern California.

Existing Low Density

Marina Hill, College Park West, College Park East, Bixby Ranch, and the “Gold Coast” area along Ocean Avenue between First and Eighth Street consist of very stable, good quality, low-density residential neighborhoods. Due to the stability and excellent quality of these residential neighborhoods, it is not expected that there will be any significant change in these areas during the lifespan of the Land Use Element.

Proposed Low Density Residential

No additional low-density residential use is proposed for the City. The most recent low-density residential project approved by the City is the Hellman Ranch Specific Plan Project, which is currently under construction and will add several single-family residential units to the City’s housing stock.

Medium Density Residential Proposals (minimum lot area of 2,500 square feet per dwelling unit; minimum lot area of 2,500 square feet per dwelling unit in Planning Area 1 south of Pacific Coast Highway)

The medium density classification allows for a number of housing types: single family housing in clusters, town house (i.e., a group of dwellings with common walls), two-family



housing arrangements on single lots, and other similar forms of multiple family housing.

Existing Medium Density Residential

Five medium-density areas exist in the City. All existing medium density areas are very stable, with only the medium density coastal area experiencing any significant changes. The change in this area is primarily due to the expansion of existing older bungalows or the demolition of an existing home and replacement with a new home. The lot development pattern in this area generally restricts development to a single-family residence per property.

The residential neighborhoods of Bridgeport and Leisure World are very stable areas that are not subject to change during the lifespan of the Land Use Element. Bridgeport is a residential neighborhood located near Fifth Street and Pacific Coast Highway.

An area of medium-density residential development and private rehabilitation within an established medium density neighborhood is the neighborhood in the Coastal Area bounded by the Pacific Coast Highway, Seal Beach Boulevard and the Pacific Electric Right-of-Way and Twelfth Street. This area remains a medium density with a minimum lot area of 2,500 square feet per dwelling unit. This lot area facilitated the consolidation of lots so that a combination of one and a half lot will allow a duplex or two-unit structure. A small portion of this residential neighborhood is designated as high density, the frontage lots along Electric Avenue and Twelfth Street.

The fourth area is the 7.85-acre parcel located on Lampson Avenue in College Park East. A minimum lot area of 2,500 square feet per dwelling unit was required for this parcel.

The fifth medium density residential area is approximately three acres of land previously utilized as the City Yard. Upon relocation of the City Yard to a more centralized location, this site was redeveloped with residential units that would be compatible with those found in Bridgeport.



Proposed Medium Density Residential

The one area of proposed medium density residential development is the property on the northeast corner of Marina Drive and First Street currently designated for "Oil Extraction." This area was previously used for an oil separation facility that separated oil and seawater pumped to the on-shore facilities from an offshore oil island that has recently been decommissioned and dismantled.

This density classification allows for the highest density considered appropriate for Seal Beach. The intensity of developments at this density requires detailed consideration of traffic circulation, relationships of larger buildings to each other and to open spaces, and the provision of usable outdoor living areas for residents.

It has been determined that the concept of high-rise development and densities associated with such structures is not in accord with the goals of the community. This residential classification will allow for the development of a two-unit, or duplex, on the average lot in the Coastal Area.

High Density (Minimum lot area of 1350 square feet per dwelling unit, Minimum lot area of 2178 square feet per dwelling unit in Planning Area 1 South of Pacific Coast Highway and Marina Drive, Minimum lot area of 960 square feet per dwelling unit in Planning Area 4, consisting of the Rossmoor Business Center)

Existing High Density Residential

High-density residential exists in three locations in the City: the residential apartment complex located directly behind to the Rossmoor Center and apartment complex located in Planning Area one of the Coastal Area and Surfside Colony, which is designated in General Plan Map as low-density residential but consists of high-density residential standards. The residential developments located behind the Rossmoor Center are fairly new and very stable and should remain so for some time. The only remaining high-density area is the Coastal Area where constant rebuilding is going on. This rebuilding can be attributed to three main reasons: the rising cost of land, the deterioration of older struc-



tures, and the extremely inviting beach living environment.

Surfside Colony

Older residential structures within Surfside Colony are renovated and/or replaced periodically, as is characteristic of Southern California beach communities. Surfside Colony is classified in the zoning and general plan as a “legal non-conforming use.” It is designated for low-density residential development, but currently the homes on-site were constructed based upon high-density residential development standards. Future developments within this community shall conform to the City’s low-density residential development standard set forth in the General Plan and Zoning Code. Future high-density residential development projects proposed within the Surfside Colony community shall be prohibited unless the structure is destroyed by natural catastrophic causes (e.g., fire, earthquake, tsunami). Then the owner shall be permitted to rebuild the home to its prior permitted “legal non-conforming” standard and not to exceed the previous value of the home.

Seal Beach Trailer Park

The Seal Beach Trailer Park is located between First Street and the San Gabriel River, and between Pacific Coast Highway and Ocean Avenue. The Trailer Park is approximately 6.6 acres in area and comprises 125 trailer spaces, a small clubhouse and play area, and a common parking lot area. The Trailer Park has provided a housing resource within the Coastal Zone for low- and moderate-income persons and families for many years. The Trailer Park received an “alternate approval” in November 1978 from the California Department of Housing, Division of Codes and Standards to allow for the development of two-story cabanas within the Trailer Park.

Oakwood Apartments

The Oakwood Apartments comprise the largest multiple-family housing development within the City – 549 units. It is located at the southwest cor-



ner of Pacific Coast Highway and First Street, and extends from First Street to the San Gabriel River. This complex was initially constructed in the early 1970s and underwent extensive renovation in 2000. It continues to provide a valuable resource for renter-occupied housing within the community.

Bridgeport/Suburbia

This is an area characterized by one- and two-story small lot residences with zero lot line setbacks. The lots in this area are approximately 3,000 square feet in area, and approximately 176 homes were developed in the early 1970s through the approval of several Planned Unit Developments. There are CC&Rs that impose specific development standards within this area that are different from the general zoning standards applicable to the large majority of parcels in Planning Area 1.

Proposed High Density Residential

High Density Residential Proposals (minimum lot area of 1,350 sq.ft. per dwelling unit; minimum lot area of 2,178 sq.ft. per dwelling unit in Planning Area 1 south of Pacific Coast Highway and Marina Drive; minimum lot area of 960 sq.ft. per dwelling unit in Planning Area 4, consisting of the Rossmoor Business Center)

There are no areas proposed for additional high-density residential development at this time within the City of Seal Beach.

Commercial Land Use

This proposed land use plan broadly identifies locations for the commercial categories of professional office, service, and general.

The visual problem traditionally associated with commercial development is that each establishment is often conceived and designed as though it is to exist alone or in a vacuum. Each development is often designed with only its particular economic requirements in mind, using materials and signs with no regard for adjacent developments. Even if the establishments are well conceived as individual entities, the overall



effect is commonly one of visual clutter. The commercial areas of Pacific Coast Highway and Main Street are particularly susceptible to visual clutter due to the lack of a design criteria applied to these areas. A superior overall visual environment could be achieved through the application of criteria ensuring compatible materials, colors, textures, and architectural styles.

The existing commercial areas of the City vary widely in their appeal to the various sectors of the community. The Rossmoor Center and the Old Ranch Towne Center primarily serve low-density single-family neighborhoods. The Leisure World shopping area serves Leisure World residents, and the Pacific Coast Highway commercial corridor serves local residents and transient shoppers. The Main Street commercial serves local residents and, to some extent, beach-going visitors from other areas. The diversity in market attraction of the various commercial areas indicates that each area should be treated differently than any of the others due to the particular clientele of each. The City has adopted a Specific Plan for the Main Street area to establish specific uses and design criteria to address the unique needs of this commercial core of the City.

Limited Commercial Land Use

The Limited Commercial Land Use zone designation was developed to allow for a mixture of residential, light commercial and professional offices uses along Seal Beach Boulevard between Landing Avenue and Electric Avenue. The allowable uses and development standards for this area were developed in conjunction with the affected property owners and adopted in 1996. Over the years, the existing standards have not encouraged the desired climate for renewal of the area as envisioned by the City and the property owners. At the direction of the City Council, a re-evaluation of the land use development pattern for this area is ongoing, with the potential to maintain the ability to develop a mixed use project of residential and commercial/office or strictly residential development being considered for implementation.

Current land uses along Seal Beach Boulevard consist of a mixture of high-density residential, low-intensity office, small commercial uses, and vacant land. Development standards have been established to act as an incentive to help renew



this area and bring about economic development to an area of the City that does not present a desirable “window” into the City. A major objective of the proposed development standards should be to recognize the inherent opportunities of the area, and encourage full utilization of those opportunities.

In developing standards and guidelines for the area, a mixture of residential, professional office, service commercial, low-intensity retail commercial, and institutional uses are contemplated. The office, commercial, service, and institutional uses should be restricted to those that seem to fit the size, scale, and intensity of the existing development pattern of the community. The intent would be to encourage the sort of enterprise that can be conducted without adversely impacting adjoining residential areas and to provide services that local residents would be inclined to walk to.

From a planning and land use standpoint, the commercial and residential mixed uses would remain, which give the area its own characteristics and flavor. The residential densities and housing types would be more compatible with the existing neighborhood, and associated problems of traffic, noise, safety, etc., would be minimized. Security, pride of ownership, aesthetics, and similar distinctions would become more apparent in the area.

This combined commercial/residential use, while retaining the land use characteristics of the area, would offer some degree of land use continuity and a more distinctive function to the area.

Professional Office Land Use

A variety of activities are covered by the professional office category, including professional and medical offices of all types, architects, engineers, real estate and insurance offices, banks, savings and loan establishments, and other types of financial activities.

Professional office uses are currently dispersed throughout the community, particularly along the Pacific Coast Highway and along Main Street.



Service Commercial Land Uses

The uses in this category would consist of commercial establishments selling a broad range of convenience and consumer goods or providing a variety of personal services. The structures involved would usually be two main types: (1) those that are located along the streets with relatively heavy pedestrian traffic along the sidewalks, with the stores usually close to the right-of-way line, and (2) those establishments to which the customer travels by automobile, and where the stores may be set back from the road, possibly in a unified development, to provide parking.

Existing Service Commercial Uses

Existing commercial areas that are designated “Service Commercial” by zoning classification include the Pacific Coast Highway commercial corridor (excluding the commercial area at Bolsa and Pacific Coast Highway, which is designated as General Commercial), the Seal Beach Shopping Center, and the Leisure World Shopping Center. By the types of land uses that are actually occurring in these areas, only the Seal Beach Shopping Center and the Leisure World Shopping Center serve the function of service commercial. Even though, by current City zoning classification, the Pacific Coast Highway commercial corridor is designated as “Service Commercial,” it is currently serving the function of general commercial uses (i.e., oriented to arterial highway uses).

Proposed Service Commercial Uses

The Seal Beach Shopping Center and the Leisure World Shopping Center continue to provide functioning service commercial uses. Downtown Main Street continues to redevelop as service commercial related uses. There are currently no new areas within the City that are proposed for Service Commercial uses.

The Main Street Specific Plan area, with the attraction of the beach and with the proximity of relatively high density residential, is the prime tourist-oriented commercial area of the City. This area experiences heavy vehicle and pedestrian influx during the summer months while also serving as the major commercial service area



for the surrounding residential areas in the coastal area of the City.

The positive environment of a commercial area can act as a magnet to draw people, or if negative, the environment can repel potential customers. Of prime consideration is a pleasing environment incorporating the following amenities, which are provided for in the Main Street Specific Plan:

- *Street Graphics (Signs, logos, or special lighting)* - Well designed street graphics can be used to announce to the pedestrian, the cyclist, or the motorist that he is approaching a distinctive area that contains a concentration of some special service or facility of the community.
- *Walkways* - Walkways can guide the activities and movements of pedestrians, direct their attention, or prevent their intrusion on certain areas. The texture of the walkways is a very immediate and personal kind of experience for the pedestrian.

The materials of walkways strongly influence usability and comfort; they can be patterned, textured, and colored. Smooth materials encourage walking, while rough surfaces inhibit walking. A change of texture in paving can cause a feeling of transition from space to space. An excitement can be created for the pedestrian, whether he is a casual shopper or directed toward a destination. Pedestrian lighting needs to be created to be more in tune with pedestrian movement rather than vehicular travel. The use of landscape materials can be employed to soften the sometimes-harsh texture of circulation paths and building structures.

- *Street Furniture* - Street furniture is the small element in an outdoor space that creates an image for that space (e.g., benches, signs, lights, mailboxes, drinking fountains, kiosks, trash containers, fire hydrants, traffic lights, newspaper stands, clocks, and planters). Frequently, too little attention is paid to street furniture in its design and placement, when in reality it is an important image-maker for the City.

Serving as the focal point of the coastal area for resident and visitor-serving commercial uses within the community, downtown Main Street will require



regular monitoring and reconsideration of the provisions of the Main Street Specific Plan to reflect current goals and concerns of the community and respond to a changing and dynamic commercial area over time.

General Commercial Land Use

The proposed general commercial land use category is primarily a highway-oriented commercial use for automobile service stations, automobile sales, automobile repair, motels and hotels, restaurants, and other related uses.

Existing General Commercial Uses

Some areas are classified “General Commercial” according to the current City ordinances. These are primarily auto service stations located on major arterials. The Rossmoor Center, by current zoning classification, is considered a general use, but in actual use it is a mixture of general and service uses. Because of the great number of general commercial uses, the Rossmoor Center area should remain as a general commercial classification.

Old Ranch Towne Center located along the east side of Seal Beach Boulevard north of the San Diego Freeway provides a mixture of larger anchor retail businesses with smaller community serving retail and service uses.

A small general commercial site is located on the west side of Seal Beach Boulevard directly adjacent to the north of the San Diego Freeway. Existing uses include high quality corporate and professional office and restaurant uses. A benefit derived from this development is buffering of the Rossmoor neighborhoods from the noise generated from a portion of the San Diego Freeway.

Another existing general commercial site is the triangular parcel consisting of 3.5 acres bounded by Pacific Coast Highway, Marina Drive, and Fifth Street. This center provides for a mix of smaller scale retail and service uses.

An area along the south side of Pacific Coast Highway is designated for commercial use. Design standards en-



courage the use of compatible materials, colors, textures, and architectural styles should also be considered for Pacific Coast Highway because it serves as a major image-maker for the community of Seal Beach. The County of Orange has designated Pacific Coast Highway as an "Urbanscape Corridor, a route that traverses an urban area with a defined visual corridor that offers a view or attractive and exciting urban scene, and that has recreational value for its visual relief as a result of nature or the designed efforts of man." Additional information is provided in the Circulation Element.

Industrial Land Use

Categories for light industry and for oil extraction are the only industrial land use categories that are appropriate for the City of Seal Beach.

Existing Light Industrial Uses

The 107-acre Boeing Integrated Defense Systems Headquarters facility is situated at the intersection of Seal Beach Boulevard and Westminster Avenue and is currently designated as light industrial land use in this Land Use Element.

Proposed Light Industrial Uses

The Boeing Integrated Defense Systems (BIDS) Specific Plan is being proposed. The proposed BIDS Specific Plan will consist of 107-acre site containing approximately 1,150,000 square feet of office, research, and development, manufacturing, and support operations space. The BIDS Specific Plan is designed to allow for development in a manner that is compatible with the surrounding land uses, within, and adjacent to, the City of Seal Beach. The BIDS Specific Plan will be divided into four Planning Areas, three of the four will be designated as Business Park/Light Industrial use with the fourth planning area designated as Hotel/Commercial use.

It is the intent of the City to encourage and require all development in the light industrial land use designation to take place under an industrial park concept in order to ensure



compatibility with surrounding land use and to preserve the general health, safety, and welfare of the Community.

Oil Extraction

Oil extraction use had been occurring on the Hellman properties since the early 1920s and is expected to continue for at least 25 years. As part of the approvals granted by the California Coastal Commission of the Hellman Ranch Specific Plan, the oil production area has been consolidated into approximately 50 acres to facilitate implementation of the Hellman Ranch Specific Plan. This oil extraction area is subject to a 25-year deed restriction for wetland restoration that will become effective upon the abandonment of oil extraction uses on the property.

Military Land Use

The function of the Seal Beach Naval Weapons Station is to provide the Navy and Marine Operating forces with ordinance weapons and ammunition.

Existing Military Use

The Seal Beach Naval Weapons Station occupies approximately 5,256 acres of land located on the eastern boundary of the Seal Beach community.

Proposed Military Use

The Naval Weapons Station plans to maintain the present operation for at least the life span of the Land Use Element.

The Weapons Station can be viewed as a positive element in that it provides visual open space, a relief from urban development for the community. The Naval Station also provides a definite boundary “edge” for a major portion of Seal Beach.

The Naval Weapons Station also serves as a necessary buffer for the preservation of the approximately 920-acre National Wildlife Refuge area located north of Anaheim Bay and Pacific Coast Highway. The Wildlife Refuge provides critical habitat for a number of endangered species and is only avail-



able to the public on a limited basis due to operational security issues of the Weapons Station and habitat preservation concerns of the resource agencies responsible for the management and protection of the Wildlife Refuge.

The United States Fish and Wildlife Service plans to convert under-utilized areas of the wildlife habitat by creating additional wetlands designed to mitigate and reduce impacts associated with urban wastewater runoff impacts.

Public Uses

Existing Public Uses

The only public use designated on the Land Use Element map is the private Old Ranch Golf Course with a public golf driving range. It is recognized that this golf course, while being private, does provide a valuable open space and recreation resource for the community. In addition, the Old Ranch Golf Course has added a driving range, which provides for public and private use.

Public Land Use

Public uses involve a wide range of places, buildings, activities, and services rendered by public agencies in behalf of the general public. Administrative, educational, cultural, recreational, and protective activities are the usual public uses included in this land use category.

The primary public land uses designated on the Land Use Map for Seal Beach are Parks and Open Space, Schools, Civic Center, City Yard, and the Pacific Electric Right-of-Way.

Parks and Open Space

Existing Parks and Open Space

The principal recreation and open space area for the City is the beachfront. Because the beachfront is more of a regional recreation attraction, it does not serve the immediate park and open space needs for the northern portion of the community. The



Coastal Area and Marina Hill are served well by the excellent beachfront and the fairly natural and unimproved Gum Grove Park. The College Park West neighborhood is served by Edison Park, which is approximately 10 acres. The College Park East neighborhood has only four small existing parks, resulting in a park deficiency.

The City has developed Heather Park in College Park East to help alleviate the park deficiency in that neighborhood. Through conscientious design methods, the City created very desirable and usable park spaces at the present park sites for the College Park neighborhoods.

In addition, the City has the ability to accept the property dedication of the area currently known as the Old Ranch Tennis Club. The dedication of this approximately 6.74 acres is an additional public recreational facility for the community. The City plans to accept the Old Ranch Tennis Club prior to its September 24, 2004 due date and will implement the re-use plan currently being finalized.

Proposed Parks and Open Space

The Orange County Flood Control District (OCFCD) operates the Los Alamitos Retarding Basin. The basin's function is to accommodate runoff from the surrounding watershed. The retarding basin also serves as a habitat for various bird species, although the habitat value is very low.

Adjacent to and south of the Flood Control basin is the Hellman Ranch Specific Plan area. A 100-acre portion of this area has been deed restricted for 25 years for sale at fair market value to a public agency for the purposes of wetlands restoration, open space, and environmental education purposes. The adjacent oil production property (approximately 50 acres) has been similarly restricted, although the 25-year period does not commence until cessation of the oil production activities.

Existing Wetlands

In 1972, the United States Congress established the Seal Beach National Wildlife Refuge on the Seal



Beach Naval Weapons Station. The refuge contains 920 acres of marshland and 560 acres outside the slough area, which were restored to their natural condition. This wetland area is inhabited by more than 100 species of birds and 60 species of fish. The Naval Weapons Station has developed a wildlife management program for the protection and conservation of this ecosystem.

The lowlands area of the Hellman Ranch Specific Plan area contains approximately 27 acres of delineated, albeit severely degraded, wetlands, and these existing wetlands will form the basis for future restoration plans.

Possible Wetlands Restoration

A 100-acre portion of the Hellman Ranch Specific Plan area has been deed restricted for 25 years for sale at fair market value to a public agency for the purposes of wetlands restoration, open space, and environmental education purposes. The adjacent oil production property (approximately 50 acres) has been similarly restricted, although the 25-year period does not commence until cessation of the oil production activities.

These areas will comprise a portion of a contemplated restoration of the Los Cerritos Wetland Complex and could lead to the eventual restoration of tidal and non-tidal wetlands along the Long Beach/Seal Beach coastline.

Schools

There is one school in the City: McGaugh Elementary School. Due to the very limited population growth proposed by the Land Use Element, no additional schools are proposed or needed for the community. The City previously purchased the Zoeter Elementary School site for development of Zoeter Park.

Civic Center Functions

Civic Center functions are divided into four main categories: Administration, Police, Fire, and Public Works. It is envisioned that the Administration offices will re-



main in the Coastal Area at Eighth Street and Central Avenue, in the City Administration Building, which was constructed in 1969.

- *Fire Station* - The City's fire protection services is provided by the Orange County Fire Authority (OCFA) and will continue to operate from Fire Station No. 48 located on Beverly Manor Road. Fire Station No. 44 will continue to serve the portion of the City nearest the beach.
- *Police Station* - The police station is centrally located within the City on the southwest corner of Seal Beach Boulevard and Adolfo Lopez Drive. The building is design to meet safety and security standards, providing state of the art equipments and facilities.
- *City Yard* - The City Corporation Yard has been re-located to a more central location and placed in an up-to-date facility to better serve the needs of the City residents. The yard is located adjacent to and west of the Police Station.
- *Pacific Electric Right-of-Way* - The Pacific Electric Right-of-Way has been developed as a park, allowing for uses such as open space, recreation, public facilities (e.g., library, senior citizens' center, Red Car Museum, etc.). Development was through the Specific Plan Process.
- *Seal Beach Pier* - The Seal Beach pier, one of the very few piers in use today along the California coastline, should be maintained as its present use to allow for fishing, walking and enjoying the ocean view. Any needed repairs for the pier should be carried out so that the present use can be continued and enhanced.



Implementation

Adoption

The California State Conservation Planning and Zoning Act (Title 7, Chapter 3, Article 7) sets forth the procedure for the adoption of the Land Use Element.

It is stated that the General Plan shall be adopted subsequent to:

1. A minimum of one public hearing before the City Planning Commission. Notice is to be given ten days prior to said hearing. (Additional public hearings may be held if necessary.)
2. Approval of the Plan shall be by resolution of the Commission carried by the affirmative votes of not less than a majority of the total-voting members.
3. The approved General Plan shall be transmitted to the City Council.
4. A minimum of one public hearing shall be held by the City Council. Notice is to be given ten days prior to said hearing. (Additional public hearings may be held if necessary.)
5. The Council shall adopt the General Plan by resolution. If any part of the General Plan is changed by the Council, said change or changes shall be referred back to the Planning Commission for a report. Said report shall be made within 40 days of the referral. The Planning Commission need not hold additional public hearings on the changes.
6. The Land Use Element shall be endorsed (signed) by the legislative body to show that it has been adopted.
7. A copy of the adopted plan shall be sent to the planning agency of the County.

Amending the General Plan follows the same procedure as that established for adoption.



Rezoning

State law requires that the City zoning map and ordinance must be in conformance with the Land Use Element map. The intent of this law is to ensure that as development occurs it will be in conformance with both the zoning map and the Land Use Map. In the past, new development could be granted a zoning change that was possibly not in accord with the General Land Use Plan and therefore created a rather piecemeal approach to planning.

Where needed, the City of Seal Beach is planning to revise the zoning map and ordinance to conform to the Land Use Element following the adoption of the Land Use Element.

Existing Zoning Ordinance

As discussed previously, the zoning ordinance will have to be reviewed to determine whether the standards and regulations are in conflict with the Land Use Element. Where conflict arises, the zoning ordinance and map should be revised to reflect the requirements of the Land Use Element. Areas in the zoning ordinance and the Land Use Element may be in general agreement, but the zoning ordinance will need to be strengthened to add support to the Land Use Element. This type of analysis can be carried out with an in depth revision of the zoning ordinance and map. This revision process should include:

1. Updated standards and development criteria.
2. Workshop sessions with elected officials and citizens to determine the goals to be achieved.
3. Public hearings on the proposed revisions.

Design Review Procedure

In the future, if necessary, the City can establish a Design (Architectural) Review Board to review all applications for the construction of new buildings. The goal of such a program is to improve site planning, and to generate a higher quality of appearance of structures and landscaping by the private and public sectors. This program could easily be enacted for the Coastal Area where the higher densities require some sense of order.



Design (Architectural) criteria may include the following:

1. Building materials will be of a character deemed compatible with a beach environment (wood, brick, etc.).
2. Roofs shall have a low pitch with no flat roofs. (Flat roofs create a boxlike appearance.)
3. Where colors are used, they will not be harsh or unharmonious.

The preceding design criteria are of a general nature and should be developed for the particular community of Seal Beach, with the unique environment of the beach in mind. The design criteria would then be enforced through provisions in the zoning ordinance.

Capital Improvements Program

One of the most important tools for implementing the Land Use Element is a program for capital improvements.

A priority system should be established to determine which projects within this Land Use Element are to be specifically planned for and developed within the context of this Plan. It is then the responsibility of the City Administrator to make a final determination as to which projects will be included in the fiscal budget for submission to the City Council. For example, the development of the County Flood Basin should be developed for joint park and flood basin uses.

Specific or Precise Plans

Government Code §65450, et seq. authorizes the preparation and adoption of specific plans. Section 65451 of the *Government Code* provides as follows:

Such specific plans shall include all detailed regulations, conditions, programs and proposed legislation which shall be necessary or convenient for the systematic implementation of each element of the general plan listed in §65302, including, but not limited to, regulations, conditions, programs and proposed legislation in regard to the following:



- (a) The location of housing, business, industry, open space, agriculture, recreation facilities, educational facilities, public buildings and grounds, solid and liquid waste disposal facilities, together with regulations establishing height, bulk and setback limits for such buildings and facilities, including the location of areas, such as flood plains or excessively steep or unstable terrain, where no building will be permitted in the absence of adequate precautionary measures being taken to reduce the level of risk to that comparable with adjoining and surrounding areas.
- (b) The location and extent of existing or proposed street and roads, their names or numbers, the tentative proposed widths with reference to prospective standards for their construction and maintenance, and the location and standards of construction, maintenance and use of all other transportation facilities, whether public or private.
- (c) Standards for population density and building density, including lot size, permissible types of construction, and provisions for water supply, sewage disposal, storm water drainage and the disposal of solid waste.

Specific Plans have been established to provide more detailed planning for several sites within the City. These have been discussed throughout the Land Use Element. The existing Boeing site is recommended for specific plan application due to its critical location and future impact on the community.

Redevelopment Agency

California law provides a means for a city to redevelop run-down or blighted areas with or without the assistance of a federal subsidy.

This procedure has been used effectively by the City of Seal Beach in setting up the Seal Beach Redevelopment Agency, and in particular, the "Riverfront Redevelopment Project." Through this vehicle, the City has managed to acquire a major portion of the Pacific Electric Right-of-Way, and also in-



duce the development of “Suburbia,” a well-designed single-family residential area.

Local Coastal Plan

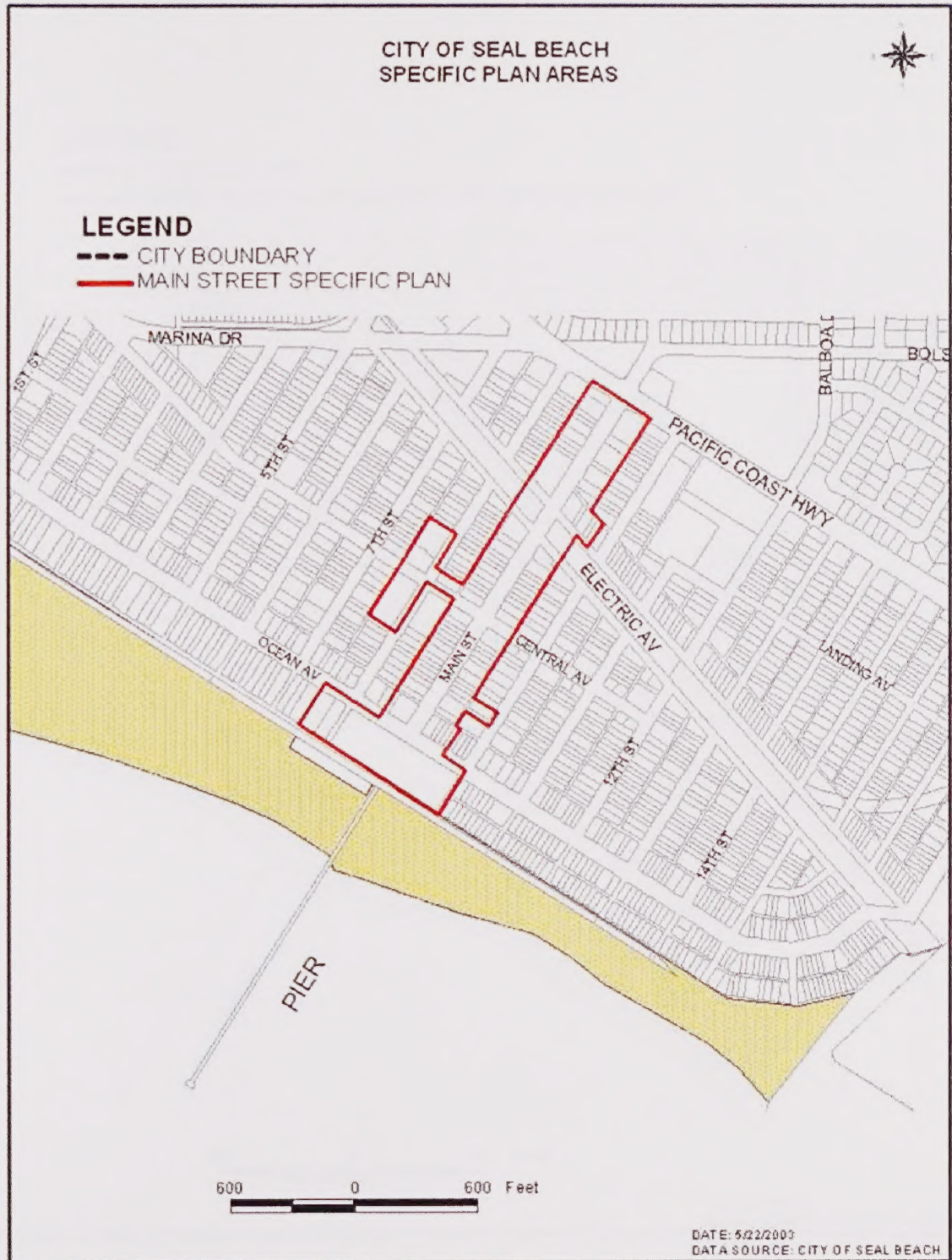
The 1976 California Coastal Act requires that each city and county within the state’s coastal zone prepare a Local Coastal Program (LCP). The LCP is defined by the Coastal Act as being the local government’s land use plan, zoning ordinance and zoning districting maps designed to implement the policies and provisions of state coastal law. After certification of a local coastal program by the California Coastal Commission, primary authority for issuance of coastal development permits become the responsibility of the local government. The certified LCP then becomes binding on all private and governmental developments in the coastal zone.

The heart of the Coastal Act is found in Chapter 3, Coastal Resources Planning and Management Policies. These policies constitute the standards that local plans must meet in order to be certified by the state, as well as the yardstick for evaluating proposed developments within the coastal zone. Key issues covered in the Local Coastal Plan include beach access, recreation, locating and planning new development, and parking. In essence, these policies are the guidelines for future growth and development in the coastal zone.

The City’s LCP is a separate planning document from the General Plan. However, LCP land use policies and issues are closely coordinated with and consistent with the General Plan.

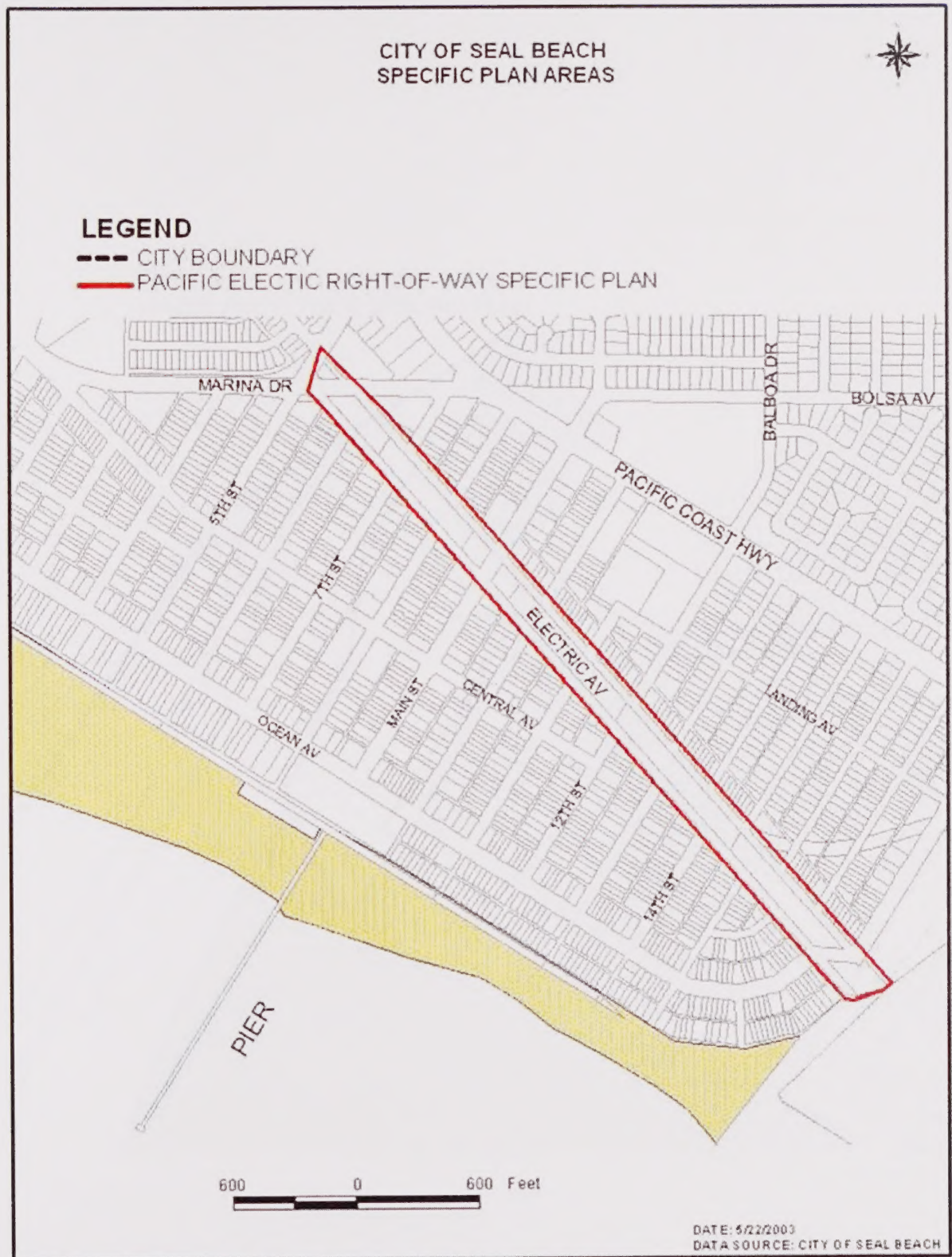


Specific Plan Boundaries



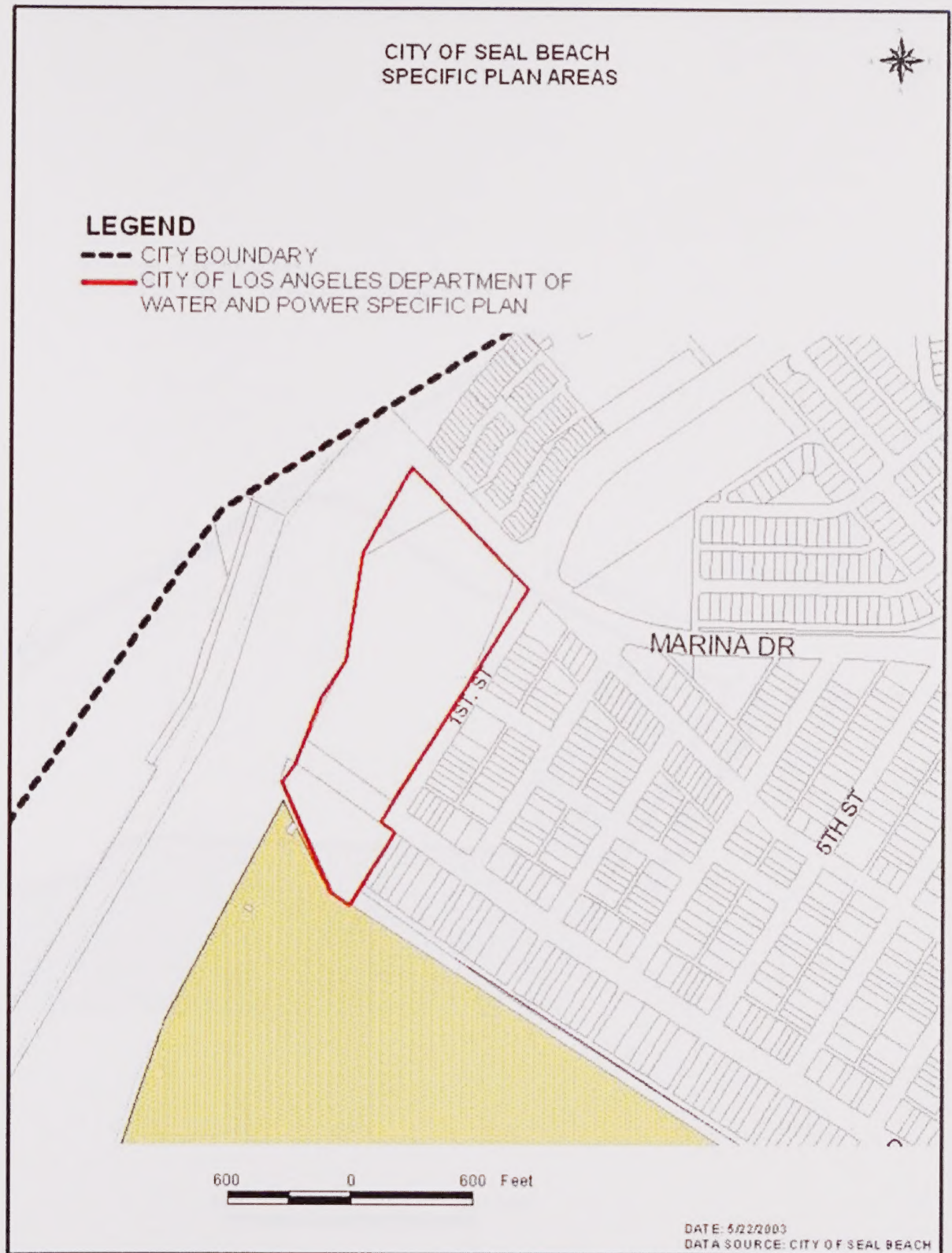
Land Use - Figure 7 - Main Street Specific Plan





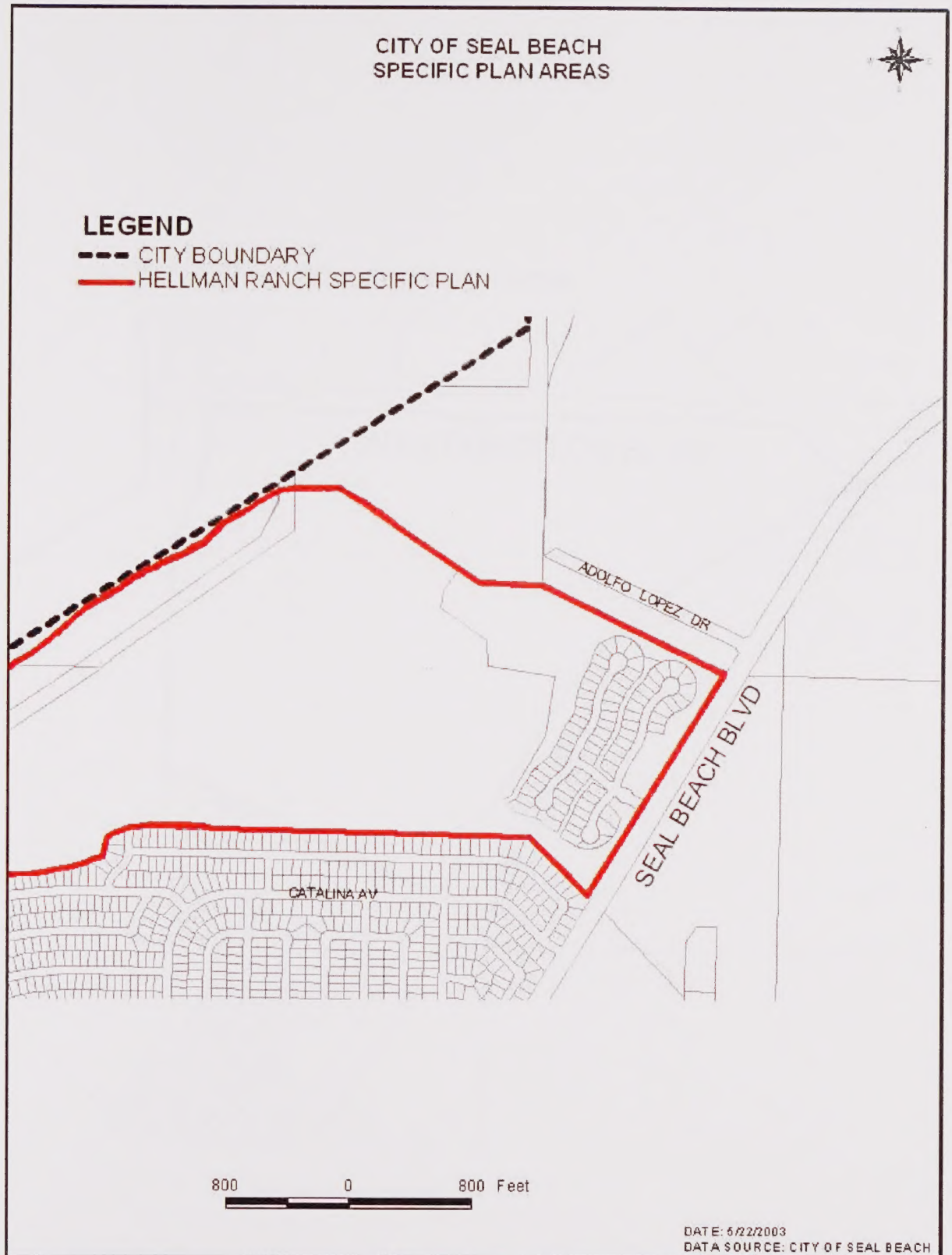
Land Use - Figure 8 - Pacific Electric Right-of-Way Specific Plan





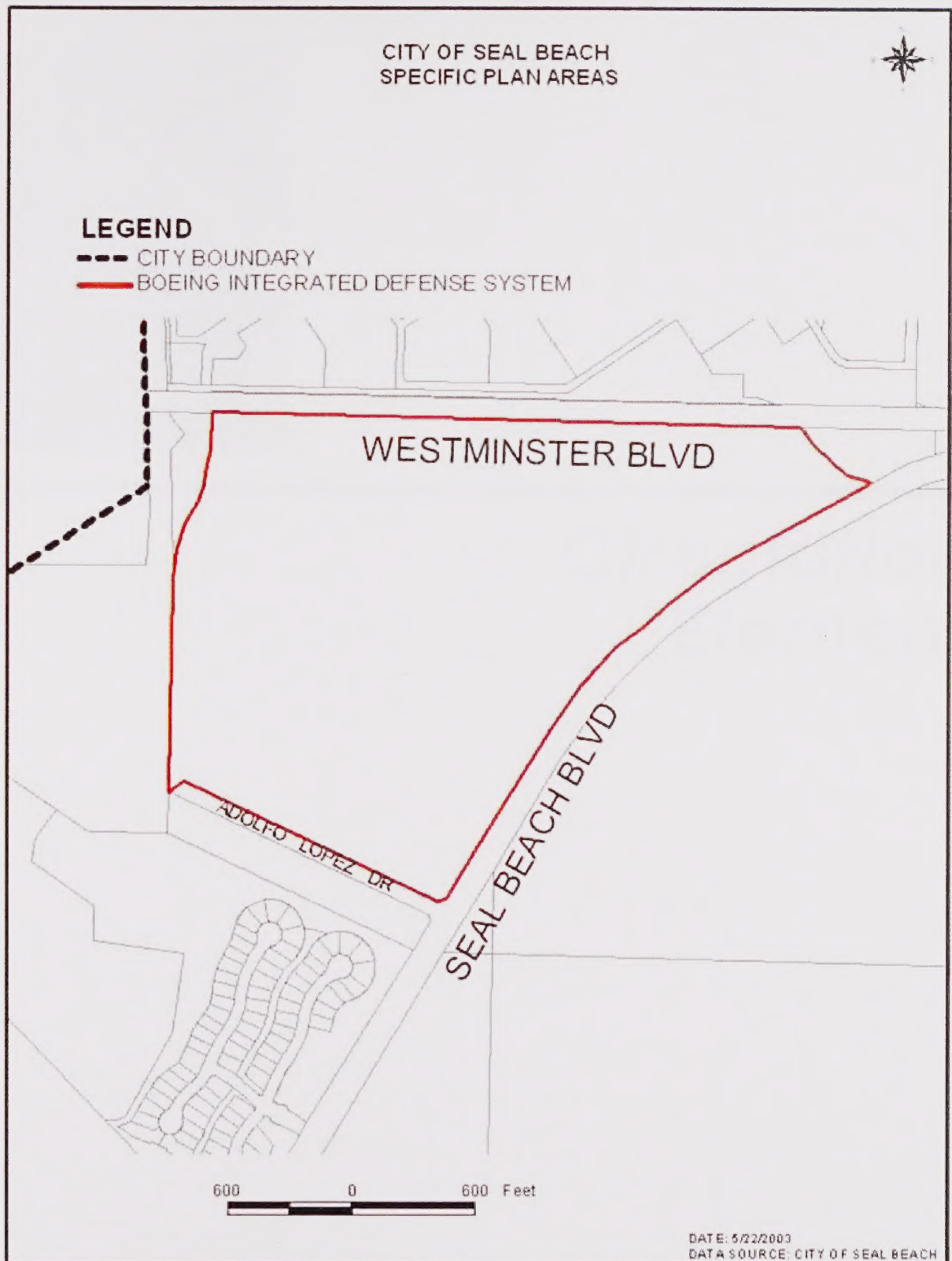
Land Use - Figure 9 - Los Angeles Department of Water and Power Specific Plan





Land Use - Figure 10 - Hellman Ranch Specific Plan





Land Use - Figure 11 - Boeing Integrated Defense Systems Specific Plan



City of Seal Beach



Circulation Element

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Summary

This section summarizes the existing traffic conditions, future traffic impacts, and future circulation recommendations.

Existing Traffic Conditions

The study area roadway links currently operate within acceptable Levels of Service, except for the following study area roadway links that operate at Level of Service F:

- Pacific Coast Highway, North City Limits to 1st Street
- Pacific Coast Highway, 1st Street to 5th Street
- Pacific Coast Highway, 5th Street to Marina Drive
- Pacific Coast Highway, Marina Drive to Bolsa Avenue
- Pacific Coast Highway, Bolsa Avenue to Seal Beach Boulevard
- Pacific Coast Highway, South of Seal Beach Boulevard

The study area intersections currently operate at Level of Service D or better during the peak hours, except for the following study area intersections that currently operate at Level of Service E/F during the peak hours:

- Pacific Coast Highway (NS) at:
 - 5th Street (EW)
- Seal Beach Boulevard (NS) at:
 - I-405 Freeway NB Ramps (EW)
 - I-405 Freeway SB Ramps (EW)
 - Westminster Avenue (EW)

Future Traffic Impacts

For Year 2025 traffic conditions, the roadway links in the vicinity of the site are projected to operate within acceptable Levels of Service, except for the following study area roadway links that are projected to operate at Level of Service F:

- Pacific Coast Highway, North City Limits to 1st Street
- Pacific Coast Highway, 1st Street to 5th Street
- Pacific Coast Highway, 5th Street to Marina Drive



- Pacific Coast Highway, Marina Drive to Bolsa Avenue
- Pacific Coast Highway, Bolsa Avenue to Seal Beach Boulevard
- Pacific Coast Highway, South of Seal Beach Boulevard

For Year 2025 traffic conditions, the study area intersections are projected to operate at Level of Service D or better during the peak hours, except for the following study area intersections which are projected to operate at Level of Service E/F during the peak hours, without improvements:

- Pacific Coast Highway (NS) at:
 - 1st Street (EW)
 - 5th Street (EW)
 - Marina Drive (EW)
 - Main Street/Bolsa Avenue (EW)
 - Seal Beach Boulevard (EW)
- Seal Beach Boulevard (NS) at:
 - I-405 Freeway NB Ramps (EW)
 - I-405 Freeway SB Ramps (EW)
 - Westminster Avenue (EW)

The study area intersections that are projected to operate worse than Level of Service D (with improvements) are all located along Pacific Coast Highway (SR 1). The relatively high levels of traffic along this corridor are a direct result of increased development outside of the City of Seal Beach and the congestion along the San Diego (I-405) Freeway. The City of Seal Beach General Plan Circulation Element and Orange County Master Plan of Arterial Highways (MPAH) depict Pacific Coast Highway (SR 1) as a Primary highway (4 lanes divided). As a Primary highway (4 lanes divided), there is insufficient capacity along Pacific Coast Highway (SR 1) to accommodate the existing as well as future traffic volumes.

Future Circulation Recommendations

The following measures are recommended in the study area:

1. Amend the Orange County Master Plan of Arterial Highways (MPAH) to delete 1st Street as a Primary (100 foot right-of-way) between Pacific Coast Highway (SR 1) and Westminster Avenue.



2. Amend the Orange County MPAH to delete the Edinger Avenue extension as a Primary (100 foot right-of-way) from its existing terminus to Pacific Coast Highway.
3. The following study area intersection improvements should be included within the City of Seal Beach Capital Improvement Program (CIP):
 - Seal Beach Boulevard (NS) at Lampson Avenue (EW):
 - Additional Southbound Through Lane
 - Seal Beach Boulevard (NS) at I-405 Freeway NB Ramps (EW):
 - Additional Northbound Through Lane – Bridge Widening
 - Additional Southbound Through Lane – Bridge Widening
 - Seal Beach Boulevard (NS) at I-405 Freeway SB Ramps (EW):
 - Additional Northbound Through Lane – Bridge Widening
 - Additional Southbound Left Turn Lane
 - Additional Southbound Through Lane – Bridge Widening
 - Seal Beach Boulevard (NS) at Westminster Avenue (EW):
 - Northbound Left Turn Lane and Three Through Lanes
 - Additional Southbound Left Turn Lane
 - Additional Eastbound Left Turn Lane
 - Additional Eastbound Through Lane
 - Additional Westbound Left Turn Lane
4. It should be noted that all of the improvements above have previously been included as recommendations within recent studies conducted in the study area. The City of Seal Beach should periodically review traffic operations in the study area to assure that the traffic operations are satisfactory and environmental impacts are minimized and/or mitigated.



Purpose and Scope

Statutory Requirements

Government Code §65302(b) requires a Circulation Element in all city general plans, as follows:

“...a circulation element consisting of the general location and extent of existing and proposed major thoroughfares, transportation routes, terminals, and other local public utilities and facilities, all correlated with the land use element of the plan.”

The Circulation Element of the City of Seal Beach General Plan serves as the City’s primary guide for transportation planning. The Circulation Element is concerned with accommodating the transportation needs of those living, working, and visiting the City. Its objective is to articulate the City’s vision and plans for the ongoing development and maintenance of a comprehensive circulation network that will efficiently move people and goods throughout the City of Seal Beach and the surrounding region.

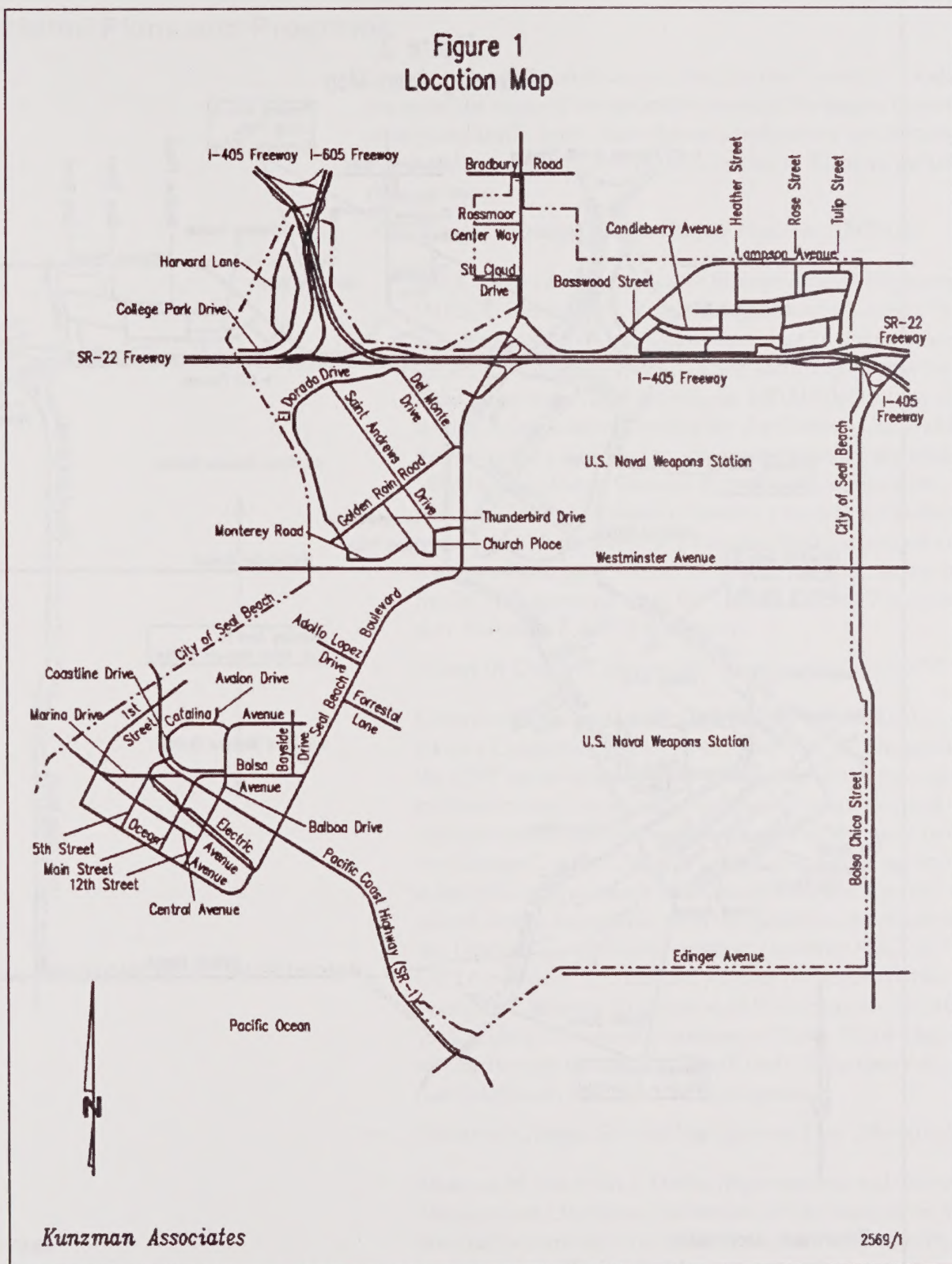
The Circulation Element focuses on roadways and other transportation modes, including public transit, railroads, and bicycle paths, that provide a full range of travel options. Also included is an assessment of the City’s current roadway system and recommendations for the improvements necessary to maintain acceptable Levels of Service on this system throughout the Year 2025.

Planning Areas

The City of Seal Beach (see Circulation - Figure 1) has been divided into five planning areas, as follows (see Circulation - Figure 2):

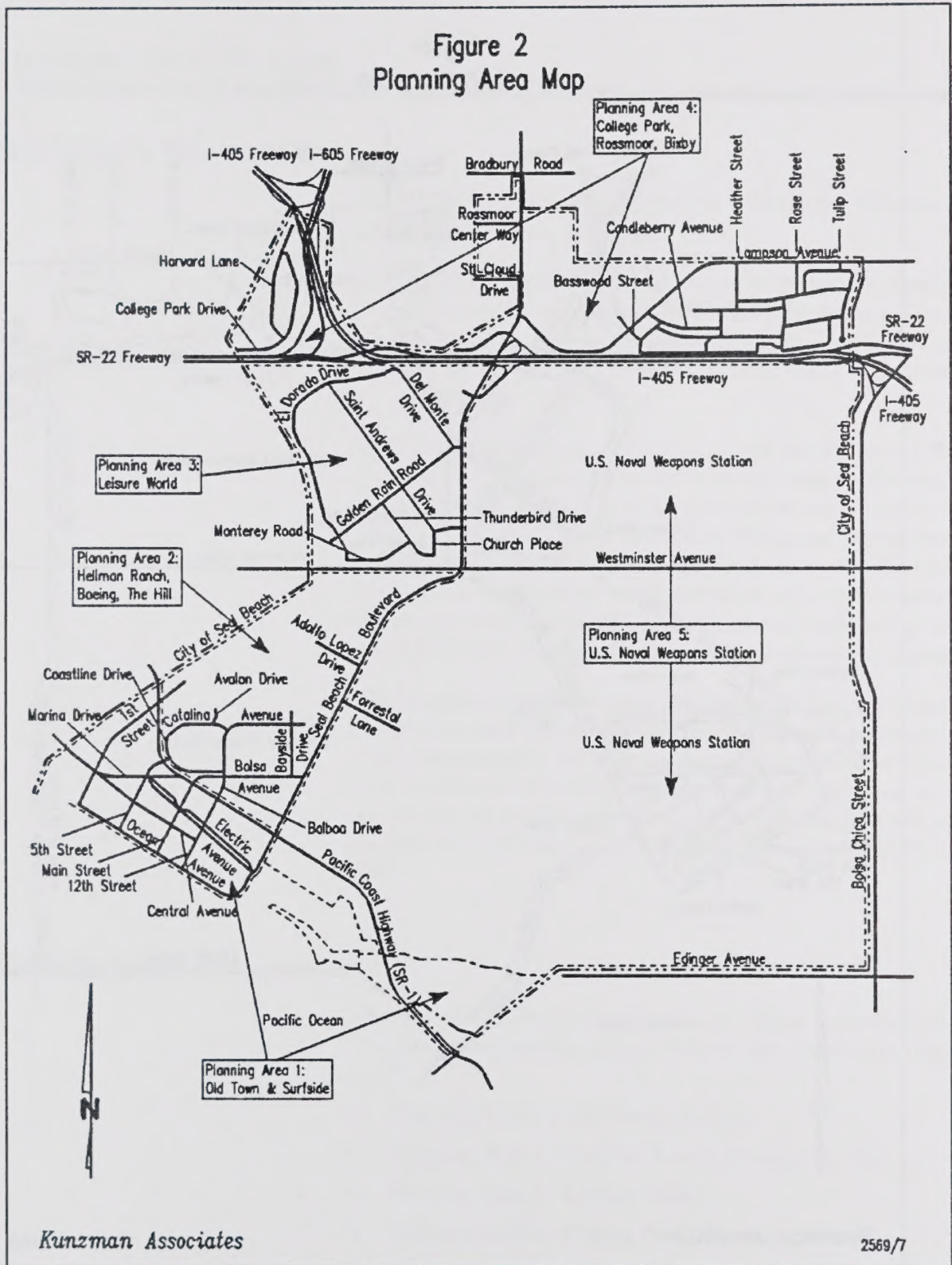
- Planning Area 1 - Old Town, Surfside
- Planning Area 2 - Hellman Ranch, Boeing, The Hill
- Planning Area 3 - Leisure World
- Planning Area 4 - College Park, Rossmoor, Bixby
- Planning Area 5 - U.S. Naval Weapons Station





Circulation - Figure 1 - Location Map





Circulation - Figure 2 - Location Map



Related Plans and Programs

Several transportation plans prepared by the County of Orange focus on the regional transportation system. Strategies to handle anticipated traffic levels from future development are discussed. Plans and programs related to the Circulation Element include the following:

- County of Orange Master Plan of Highways (MPAH)

The County of Orange Master Plan of Arterial Highways (MPAH) forms a part of the Orange County General Plan and designates the arterial system in the Circulation Element of the General Plan. Defined according to specific arterial functional classifications, the MPAH defines the intended future roadway system for the County. Cities within the County are expected to achieve consistency with the MPAH in individual General Plan circulation elements. The Seal Beach Circulation Element proposes no further extension to First Street as a Primary Highway and no extension of Edinger Avenue. To implement this change to the MPAH, approval from the Orange County Transportation Authority (OCTA) is required.

- County of Orange Congestion Management Plan (CMP)

Urbanized areas such as Orange County are required to adopt a Congestion Management Plan (CMP). The goals of the CMP are to reduce traffic congestion and to provide a mechanism for coordinating land use development and transportation improvement decisions. For the most part, the Orange County CMP is a composite of local agency submittals in which each local jurisdiction develops the required data in accordance with the guidelines established by the Orange County Transportation Authority (OCTA). The OCTA compiles the data and submits the results to the Southern California Association of Governments (SCAG) for a finding of regional consistency. Pacific Coast Highway is the only road in Seal Beach that is a component of the Congestion Management Plan system.

- County of Orange Growth Management Plan (Measure M)

Measure M, the revised Traffic Improvement and Growth Management Ordinance, authorized by the imposition of a one-half percent sales tax to fund needed transportation improvements. To be eligible to receive Measure M funds, local jurisdictions must satisfy a variety of requirements as



set out in the Orange County Local Transportation Authority (LTA) Ordinance No. 2. LTA Ordinance No. 2 requires local jurisdictions to adopt a traffic circulation plan consistent with the MPAH, adopt and adequately fund a local transportation fee program, satisfy maintenance requirements, adopt a Growth Management Element, and adopt a seven-year capital improvement program that includes all transportation projects funded either partially or fully by Measure M funds.

- County of Orange Master Plan of Countywide Bikeways

Also part of the County of Orange General Plan, the Master Plan of Countywide Bikeways designates various classes of bike routes throughout the County. One of the primary considerations of this plan is to provide continuity throughout the County and to provide consistency between countywide and local jurisdiction bikeway plans. The Circulation Element contains a bikeway plan that utilizes the countywide classification system and links to County routes.



Existing Traffic Conditions

The traffic conditions as they exist today are discussed below and illustrated on Circulation - Figure 3 through Circulation - Figure 1.

Existing Travel Lanes and Intersection Controls

Circulation - Figure 3 through Circulation - Figure 12 identify the existing roadway conditions for arterials within the City of Seal Beach. The number of through lanes for existing roadways, by Planning Area, are illustrated on Circulation - Figure 3 through Circulation - Figure 7. The existing intersection controls are identified by Planning Area on Circulation - Figure 8 through Circulation - Figure 12.

Existing Average Daily Traffic (ADT) Volumes

All tables and figures in the Circulation Element reflect information obtained by conducting a detailed traffic analysis prepared by Kunzman Associates in March 2003 for the City. Where daily traffic counts were not available and where peak hour counts were available, daily traffic counts were estimated by Kunzman Associates from the peak hour counts.

Existing Volume to Capacity Ratios

Roadway capacity is generally defined as the number of vehicles that can be reasonably expected to pass over a given section of road in a given time period. Congestion, high accident rates, the quality of traffic flow (Level of Service), and environmental acceptability all come into play in defining a particular roadway's effective capacity. It is possible to identify maximum desirable volumes for typical roadway types based on the number of roadway travel lanes. These daily volumes reflect estimates of the amount of daily traffic that will result in peak hour traffic volumes equal to the maximum desirable capacity of each roadway type. In the City of Seal Beach, Level of Service D is the minimum acceptable condition that should be maintained along roadway segments.



Circulation - Table 1 - Existing Average Daily Traffic (ADT) Volumes and Volume to Capacity Ratios

Roadway	Segment	No. of Lanes	Capacity	ADT	V/C Ratio	LOS
1st Street	Marina Dr. to Pacific Coast Hwy	2U	12,500	2,400	0.19	A
	East of Pacific Coast Hwy.	2U	12,500	200	0.02	A
5th Street	Marina Drive to Pacific Coast Hwy.	4U	25,000	5,200	0.21	A
	Pacific Coast Hwy to Coastline Dr.	2U	12,500	3,100	0.25	A
Adolfo Lopez Dr	West of Seal Beach Blvd.	2U	12,500	1,400	0.11	A
Basswood St.	South of Lampson Ave.	2U	12,500	3,900	0.31	A
Bolsa Ave.	Pacific Coast Hwy to Seal Beach Blvd.	2U	12,500	5,900	0.47	A
Golden Rain Rd.	West of Seal Beach Blvd.	4D	37,500	13,200	0.35	A
Lampson Ave.	Seal Beach Blvd. to Basswood St.	4D	37,500	17,500	0.47	A
	Basswood St. to East City Limits	4D	37,500	11,000	0.29	A
Main St.	Electric Ave. to Pacific Coast Hwy	2U	12,500	5,500	0.44	A
Marina Ave.	West City Limits to Pacific Coast Hwy	4D	37,500	5,400	0.14	A
Pacific Coast Hwy	North City Limits to 1st St	4D	37,500	46,500	1.24	F
	1st St. to 5th St.	4D	37,500	46,000	1.23	F
	5th St. to Marina Dr.	4D	37,500	45,300	1.21	F
	Marina Dr. to Bolsa Ave.	4D	37,500	44,700	1.19	F
	Bolsa Ave. to Seal Beach Blvd.	4D	37,500	45,400	1.21	F
	South of Seal Beach Blvd.	4D	37,500	41,900	1.12	F
Rossmoor Center Way	West of Seal Beach Blvd.	2U	12,500	3,800	0.30	A
Seal Beach Blvd.	Bradbury to St. Cloud Dr.	6D	56,300	35,100	0.62	B
	St. Cloud Dr. to Lampson Ave.	6D	56,300	46,300	0.82	D
	Lampson Ave. to I-405 Fwy	6D	56,300	45,400	0.81	D
	I-405 Fwy to Golden Rain Rd.	6D	56,300	40,000	0.71	C
	Golden Rain Rd. to St. Andrews Dr.	6D	56,300	33,800	0.60	B
	St. Andrews Dr. to Westminster Ave.	6D	56,300	32,200	0.57	A
	Westminster Ave. to Adolfo Lopez Dr.	6D	56,300	28,000	0.50	A
	Adolfo Lopez Dr. to Bolsa Ave.	6D	56,300	26,800	0.48	A
	Bolsa Ave. to Pacific Coast Hwy.	6D	56,300	21,100	0.37	A
	Pacific Coast Hwy. to Electric Ave.	2U	12,500	7,500	0.60	A
St. Cloud Dr.	West of Seal Beach Blvd.	4U	25,000	9,300	0.37	A
Westminster Ave.	West City Limits to Road A	4D	37,500	23,100	0.62	B
	Road A to Seal Beach Blvd.	4D	37,500	23,200	0.62	B
	East of Seal Beach Blvd.	4D	37,500	22,500	0.60	A
	West of Bolsa Chica St.	4D	37,500	24,100	0.64	B



By dividing existing ADT volumes by the daily roadway capacities listed in Circulation - Table 2, existing volume-to-capacity ratios have been calculated and are shown in Circulation - Table 1. As may be seen in Circulation - Table 1, the study area roadway links currently operate within acceptable Levels of Service, except for the following study area roadway links that operate at Level of Service F:

- Pacific Coast Highway, North City Limits to 1st Street
- Pacific Coast Highway, 1st Street to 5th Street
- Pacific Coast Highway, 5th Street to Marina Drive
- Pacific Coast Highway, Marina Drive to Bolsa Avenue
- Pacific Coast Highway, Bolsa Avenue to Seal Beach Boulevard
- Pacific Coast Highway, South of Seal Beach Boulevard

Existing Intersection Capacity Utilization

The technique used to assess the operation of an intersection is known as Intersection Capacity Utilization (ICU). To calculate an ICU value, the volume of traffic using the intersection is compared with the capacity of the intersection. An ICU value is usually expressed as a percent. The percent represents that portion of the hour required to provide sufficient capacity to accommodate all intersection traffic if all approaches operate at capacity.

The ICUs for the existing traffic conditions have been calculated and are shown in Circulation - Table 3. Existing ICU values are based upon manual morning and evening peak hour turning movement counts made for the City of Seal Beach and Kunzman Associates in January/March/June/ September/ November, 2002 (see Circulation - Figure 13 through Circulation - Figure 14). Traffic count worksheets are provided in Appendix B of the Circulation Analysis.

There are two peak hours in a weekday. The morning peak hour is between 7:00 a.m. and 9:00 a.m., and the evening peak hour is between 4:00 p.m. and 6:00 p.m. The actual peak hour within the two-hour interval is the four consecutive 15-minute periods with the highest total volume when all movements are added together. Thus, the evening peak hour at one intersection may be 4:45 p.m. to 5:45 p.m. if those four consecutive 15-minute periods have the highest combined volume.



Circulation - Table 2 - Roadway Capacities

Facility Type	Number of Lanes	Capacity				
		LOS A	LOS B	LOS C	LOS D	LOS E
Principal	8 lanes divided	45,000	52,500	60,000	67,500	75,000
Major	6 lanes divided	33,900	39,400	45,000	50,600	56,300
Primary	4 lanes divided	22,500	26,300	30,000	33,800	37,500
Secondary	4 lanes undivided	15,000	17,500	20,000	22,500	25,000
Commuter	2 lanes undivided	7,500	8,800	10,000	11,300	12,500

Note: These are generalized capacities to be used for planning purposes only, and do not consider specific measures such as peak hour factors.

Circulation - Table 3 - Existing Intersection Capacity Utilization (ICU) and Level of Service (LOS)

Intersection	Traffic Control ³	Intersection Approach Lanes ¹												Peak Hour ICU-LOS ²	
		Northbound			Southbound			Eastbound			Westbound				
		L	T	R	L	T	R	L	T	R	L	T	R	AM	PM
Pacific Coast Hwy at:															
1st St. (EW)	TS	1	2	1	1	2	1	1.5	0.5	1	0	1	0	88.9-D	83.3-D
5th St. (EW)	TS	1	2	1	1	2	1	1	1	1	0	1	0	90.5-E	92.6-E
Marina Dr. (EW)	CSS	1	2	0	0	2	1	0	0	1	0	0	0	67.1-B	83.7-D
Main St./Bolsa Ave. (EW)	TS	1	2	1	1	2	1	1	1	1	1	1	1>	62.3-B	72.4-C
Seal Beach Blvd. (EW)	TS	1	2	1>	1	2	1	1	2	0	2	1	1	76.8-C	76.7-C
Seal Beach Blvd. (NS) at:															
Rossmoor Center Way (EW)	TS	1	3	0	1	3	0	1	1	0	0	1	0	39.9-A	60.2-B
St. Cloud Dr. (EW)	TS	1	3	0	1	3	0	1	0.5	1.5	1	1	0	63.9-B	76.2-C
Lampson Ave. (EW)	TS	0	3	1>	2	2	0	0	0	0	2	0	1>	73.6-C	63.1-B
I-405 Fwy NB Ramps (EW)	TS	2	2	1>>	1	2	1	1	1	1	1.5	0.5	1	68.9-B	101.3-F
I-405 Fwy SB Ramps (EW)	TS	1	2	1	1	2	0	0.5	0.5	1	1.5	0.5	1>>	92.6-E	100.0-E
Golden Rain Rd. (EW)	TS	1	3	0	0	3	1	2	0	1	0	0	0	45.4-A	51.4-A
Westminster Ave. (EW)	TS	1	3	0	1	3	1	1	2	1	1	2	1	92.6-E	90.7-E
Adolfo Lopez Dr. (EW)	CSS	1	3	0	0	3	1	1	0	1	0	0	0	30.0-A	31.0-A
Bolsa Ave. (EW)	TS	1	3	1	1	3	1	1	1	0	1	1	0	34.4-A	32.6-A
Basswood St. (NS) at:															
Lampson Ave. (EW)	TS	1	1	0	0	1	0	1	2	0	1	2	0	47.0-A	42.5-A

¹ When a right turn lane is designated, the lane can either be striped or unstriped. To function as a right turn lane, there must be sufficient width for right turning vehicles outside the through lanes.

L=left, T=through, R=right, >=right turn overlap, >>=free right turn

² ICU-LOS=Intersection Capacity Utilization-Level of Service

³ TS=traffic signal

CSS=cross street stop



The technique used to calculate Intersection Capacity Utilization (ICU) is as follows. Lane capacity is 1,700 vehicles per lane per hour of green time for through and turn lanes. A total yellow clearance time of 5% is added. In the City of Seal Beach, Level of Service D is the minimum acceptable condition that should be maintained during the peak hours.

The study area intersections currently operate at Level of Service D or better during the peak hours, except for the following study area intersections that currently operate at Level of Service E/F during the peak hours:

- Pacific Coast Highway (NS) at:
 - 5th Street (EW)
- Seal Beach Boulevard (NS) at:
 - I-405 Freeway NB Ramps (EW)
 - I-405 Freeway SB Ramps (EW)
 - Westminster Avenue (EW)

Existing ICU worksheets are provided in Appendix C of the Traffic Analysis.

Comparison of volume to capacity ratios and corresponding Level of Service, and peak hour Intersection Capacity Utilization and corresponding Level of Service reveals significant differences. The differences between link volume to capacity ratios and peak hour ICU values is particularly pronounced when cross traffic is light. Volume to capacity ratios assume that all cross streets require 50% of the time to satisfy their demand, and assume that the subject street has 50% of the time available to it. The link volume to capacity ratios are a generalized indicator, while peak hour ICU actually represents what can be expected in the peak hour at intersections. Of the two indicators, the peak hour ICU value and corresponding LOS is by far the best measure of roadway performance.

Existing Master Plan of Arterial Highways

Circulation - Figure 15 exhibits the City of Seal Beach General Plan Circulation Element. Existing roadways and future roadways are included in the Circulation Element of the General Plan and are graphically depicted on Circulation - Figure 15. This figure shows the nature and extent of arterial highways that are needed to serve adequately the ultimate development depicted by the Land Use Element of the General Plan.



Existing and Proposed Bicycle Facilities

The bicycle facilities within the study area are depicted on Circulation - Figure 16 through Circulation - Figure 20 by Planning Area. The City of Seal Beach has established the following three classifications of bikeways that generally correspond with the Orange County Transportation Authority (OCTA) bikeway classifications:

- Class I Bikeway – Provides for bicycle travel on a right-of-way completely separated from the street.
- Class II Bikeway – Provides for a striped lane for one-way travel within the street right-of-way.
- Class III Bikeway – Provides for on-road, signed only bikeway.

The City of Seal Beach also has a Class III Bikeway designation. Class III Bikeways provide for on-road, signed only bikeways. These are special locations and are not included on the bike trail map.

Existing Transit Service

The study area is currently served by Orange County Transportation Authority (OCTA) Routes 1, 21, 42, 60, 70, 164, and 701. In addition, Long Beach Transit Route 131 serves the study area. Circulation - Figure 21 through Circulation - Figure 1 illustrate the existing transit routes by Planning Area.

- Route 1 currently provides service along Pacific Coast Highway (SR-1).
- Route 21 currently provides service along Bolsa Chica Street and Edinger Avenue.
- Route 42 currently provides service along Seal Beach Boulevard, Electric Avenue, Main Street, Bolsa Avenue, Balboa Drive, and Pacific Coast Highway (SR-1).
- Route 60 currently provides service along Westminster Avenue.
- Route 70 currently provides service along Bolsa Chica Street and Edinger Avenue.
- Route 131 currently provides service along Pacific Coast Highway (SR-1), Main Street, Electric Avenue, and 5th Street.



- Route 164 currently provides service along Lampson Avenue, Seal Beach Boulevard, and Golden Rain Road.
- Route 211 currently provides service along Lampson Avenue and Seal Beach Boulevard.
- Route 701 currently provides service along Lampson Avenue and Seal Beach Boulevard.

A park-and-ride facility that allows commuters to meet and park their personal vehicles at one location and utilize carpools, vanpools, or commuter bus service is located along Lampson Avenue (Planning Area 4).

Existing Rail Service

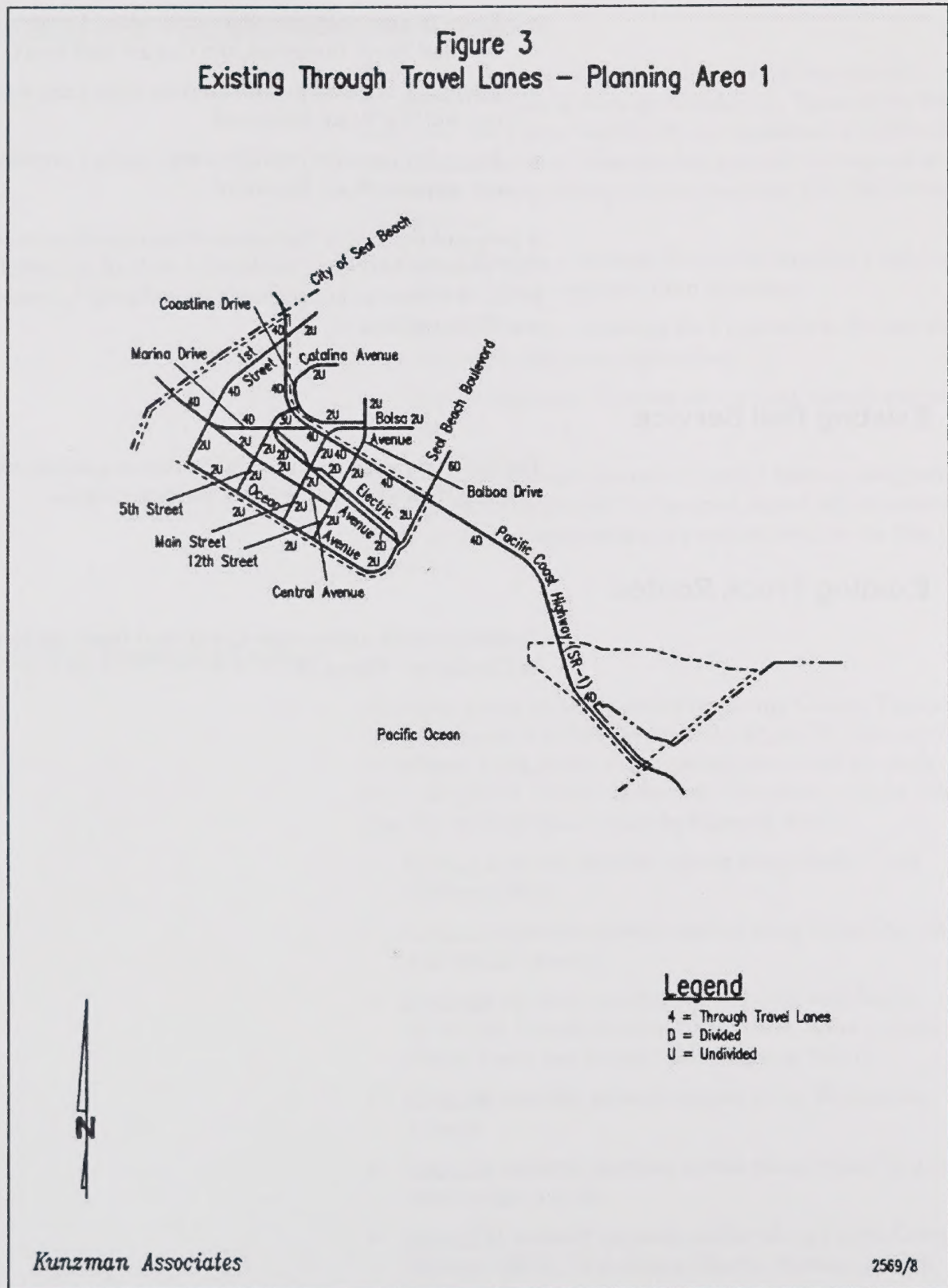
The U.S. Navy currently operates rail service generally within Planning Area 5 in the U.S. Naval Weapons Station.

Existing Truck Routes

Designated truck routes in the City of Seal Beach are illustrated on Circulation - Figure 26.

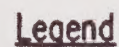


Figure 3
Existing Through Travel Lanes – Planning Area 1



Circulation - Figure 3 - Existing Through Travel Lanes – Planning Area 1





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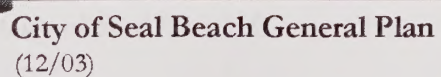
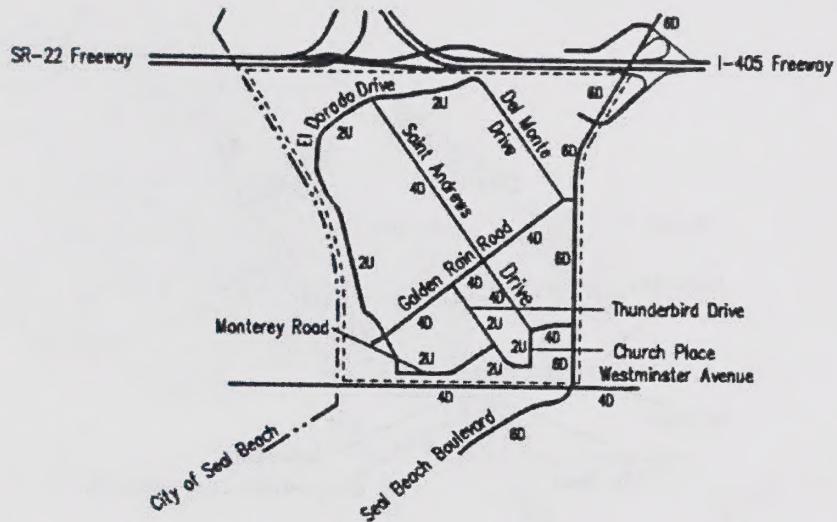


Figure 5
Existing Through Travel Lanes – Planning Area 3



Legend

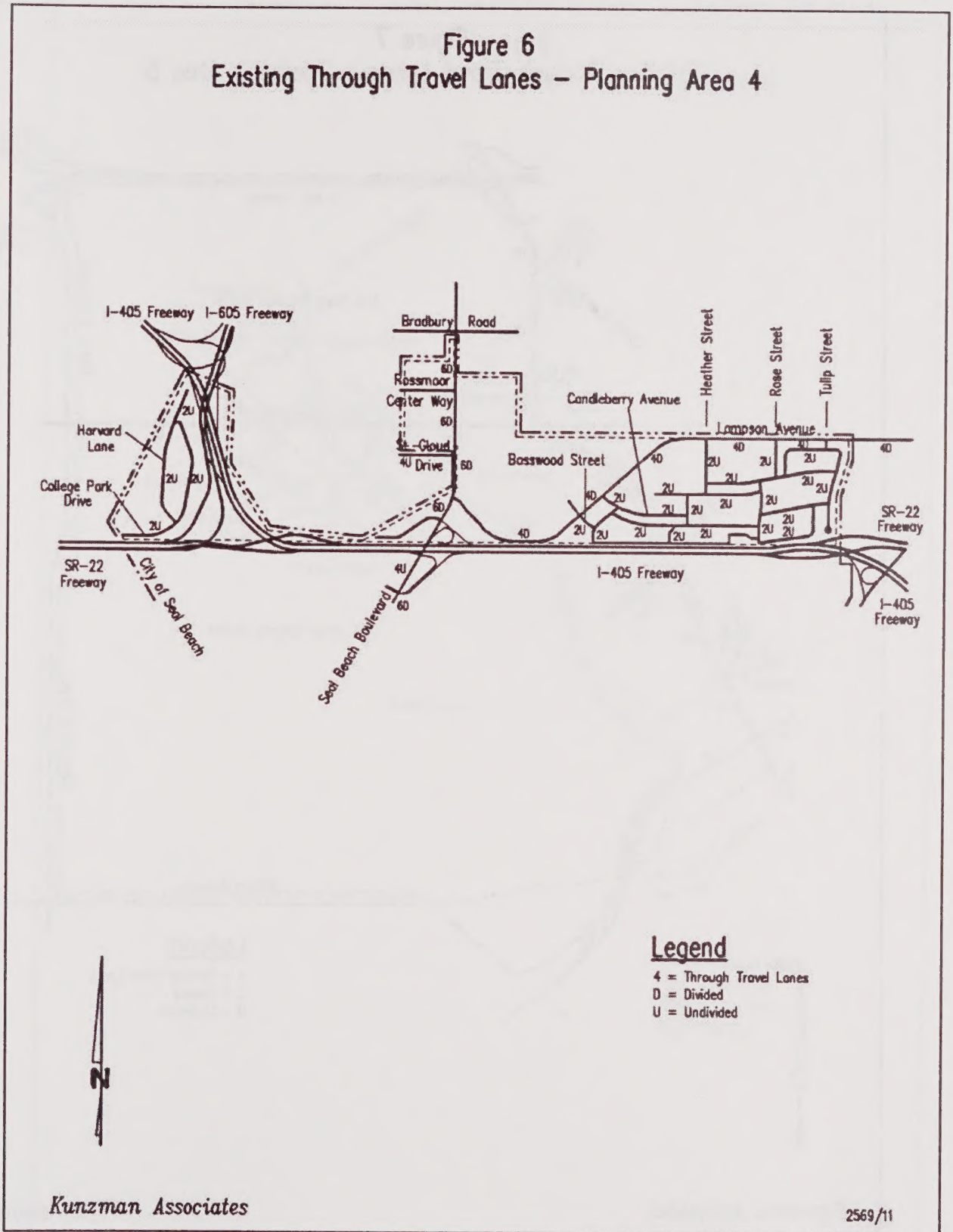
- 4 = Through Travel Lanes
- D = Divided
- U = Undivided

Kunzman Associates

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Circulation - Figure 5 - Existing Through Travel Lanes – Planning Area 3

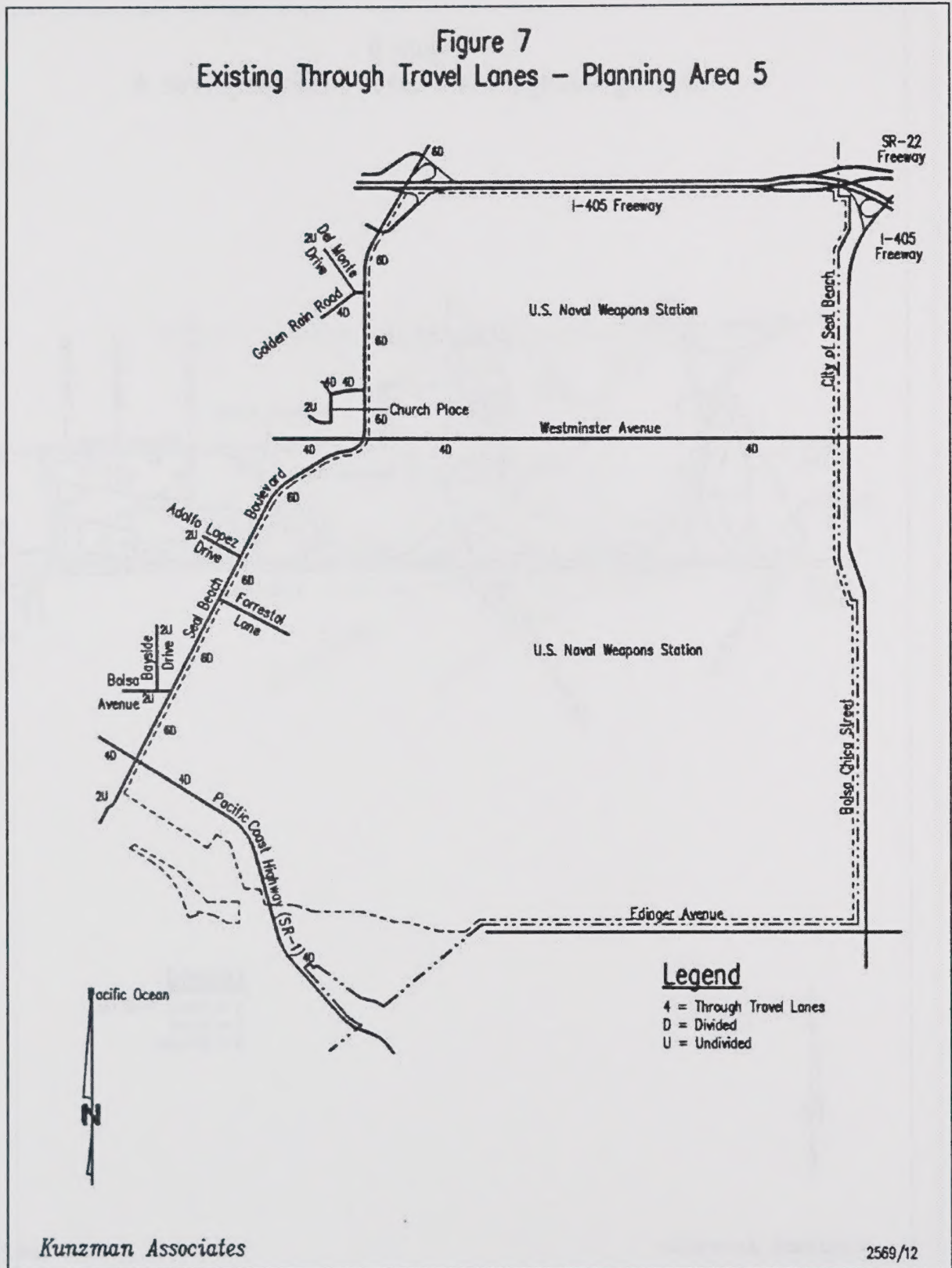




Circulation - Figure 6 - Existing Through Travel Lanes – Planning Area 5



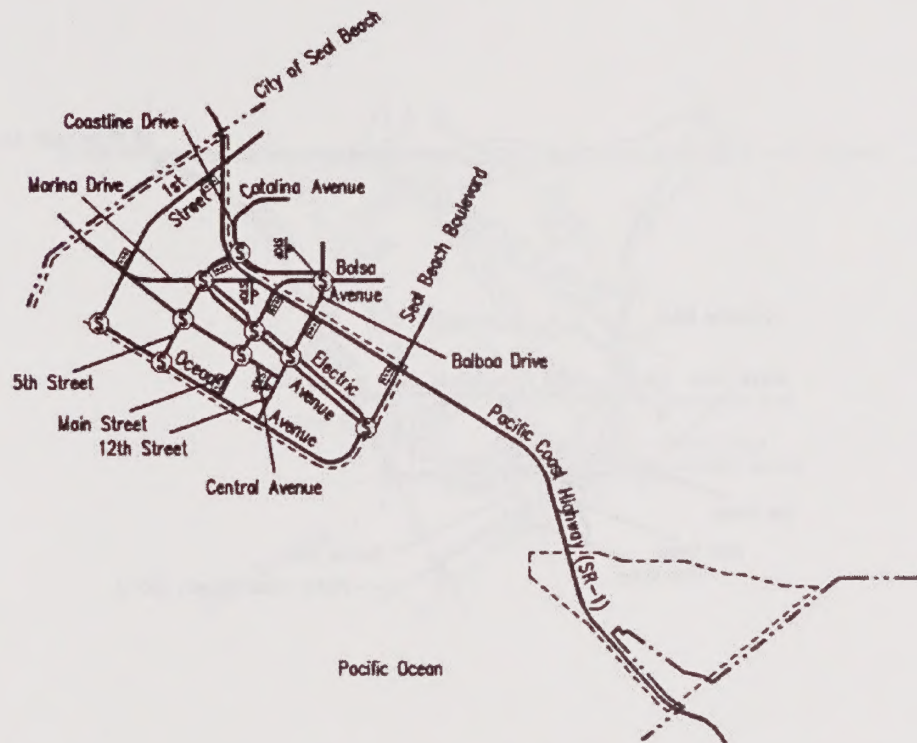
Figure 7
Existing Through Travel Lanes – Planning Area 5



Circulation - Figure 7 - Existing Through Travel Lanes – Planning Area 5



Figure 8
Existing Intersection Controls – Planning Area 1



Legend

-  = Traffic Signal
-  = All Way Stop
-  = Stop Sign



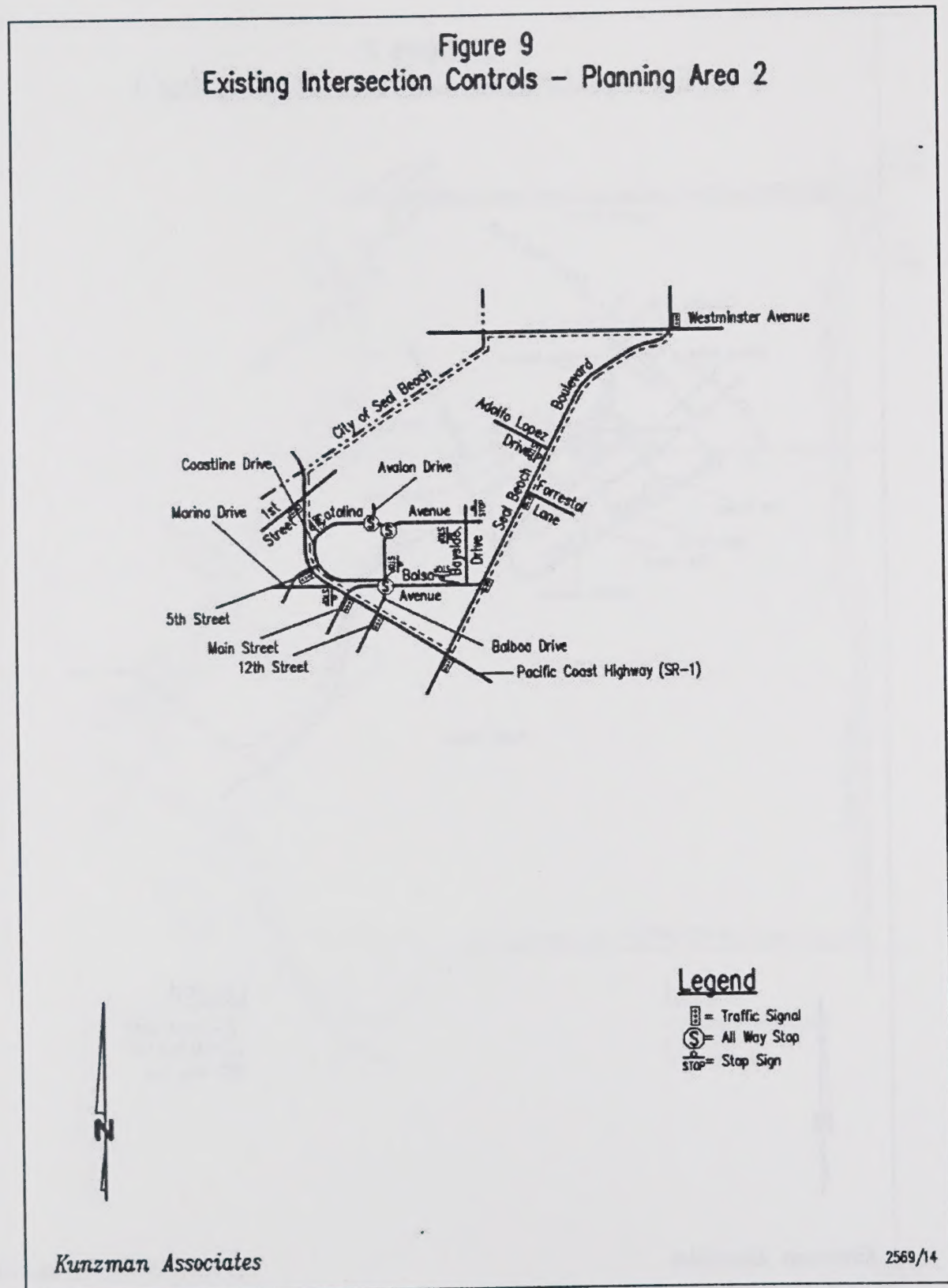
Kunzman Associates

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Circulation - Figure 8 - Existing Intersection Controls – Planning Area 1



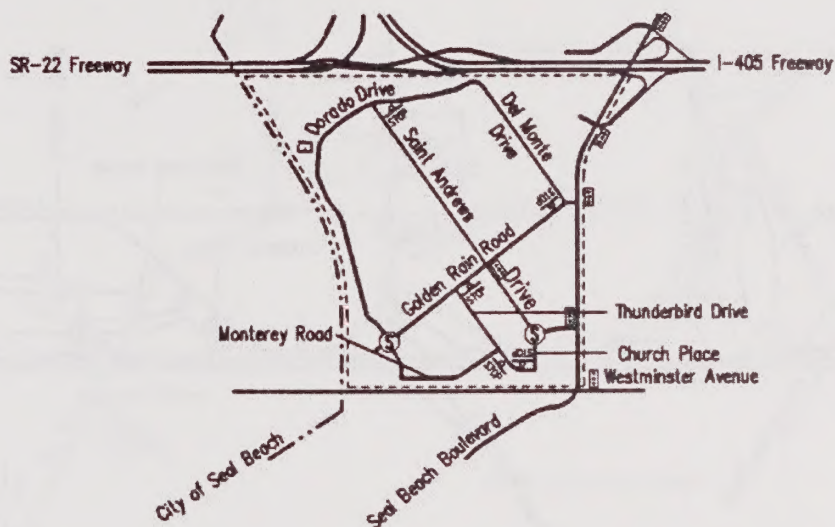
Figure 9
Existing Intersection Controls – Planning Area 2



Circulation - Figure 9 - Existing Intersection Controls – Planning Area 2



Figure 10
Existing Intersection Controls – Planning Area 3



Legend

- T = Traffic Signal
- S = All Way Stop
- stop = Stop Sign



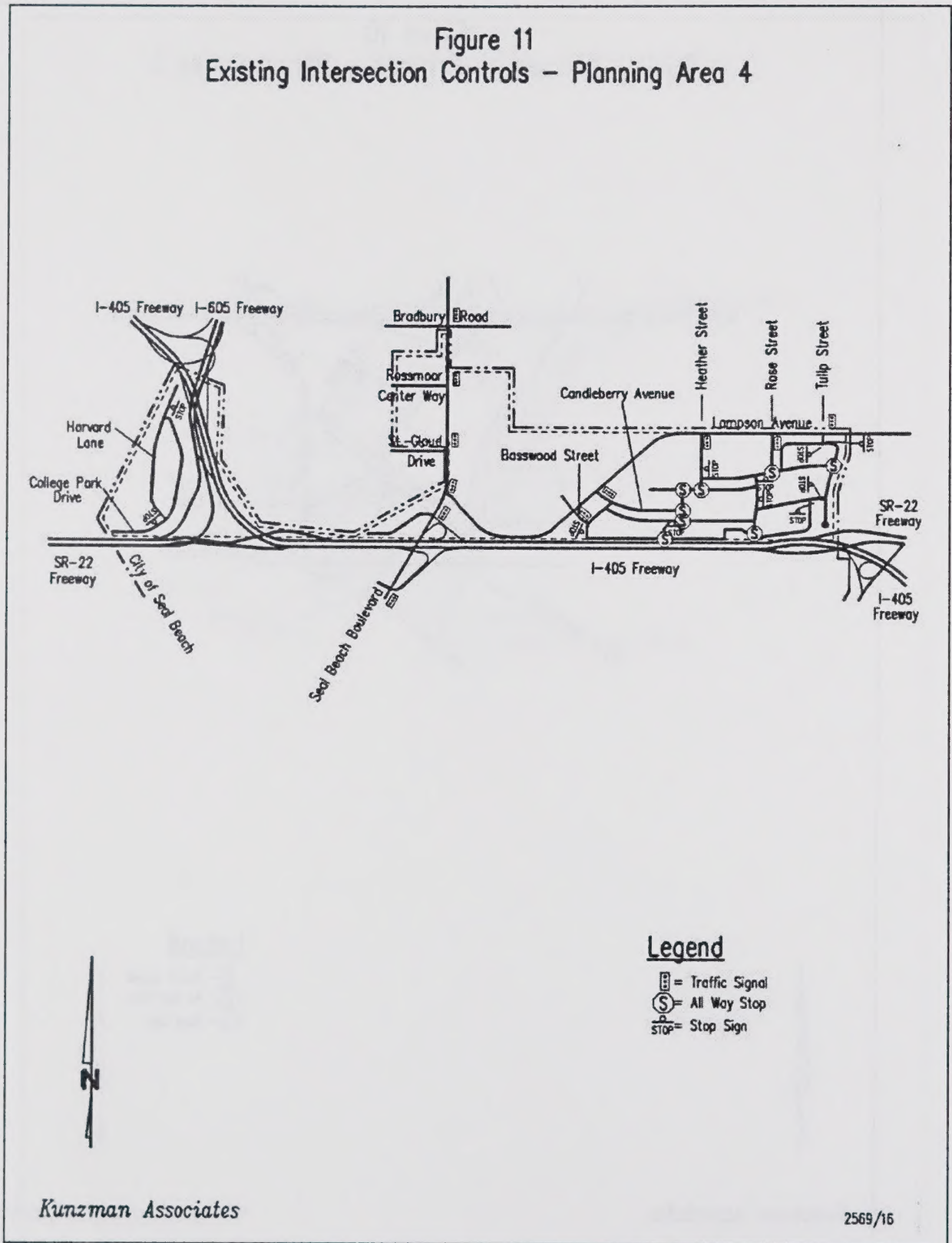
Kunzman Associates

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Circulation - Figure 10 - Existing Intersection Controls – Planning Area 3

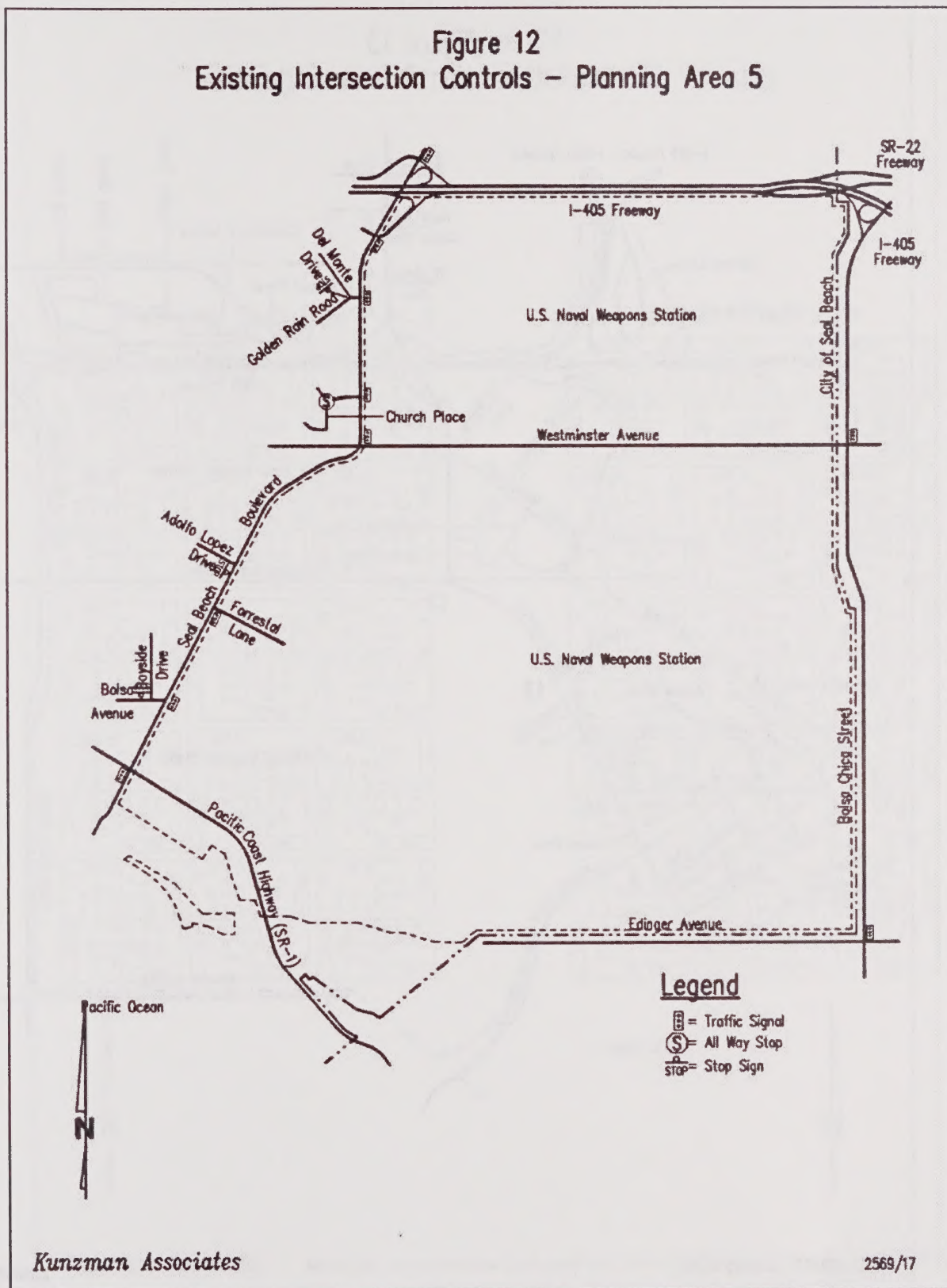


Figure 11
Existing Intersection Controls – Planning Area 4



Circulation - Figure 11 - Existing Intersection Controls – Planning Area 4

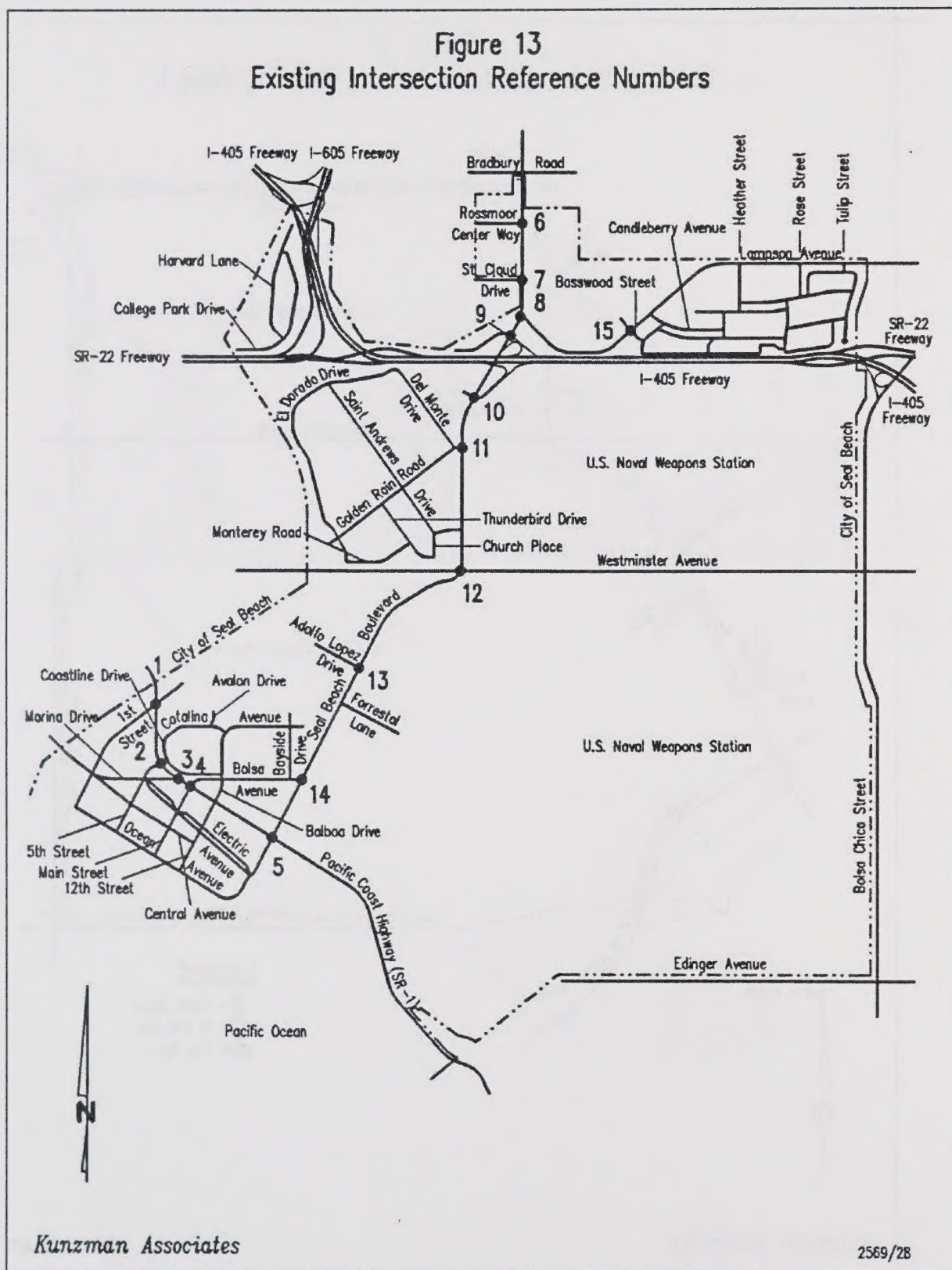




Circulation - Figure 12 - Existing Intersection Controls – Planning Area 5



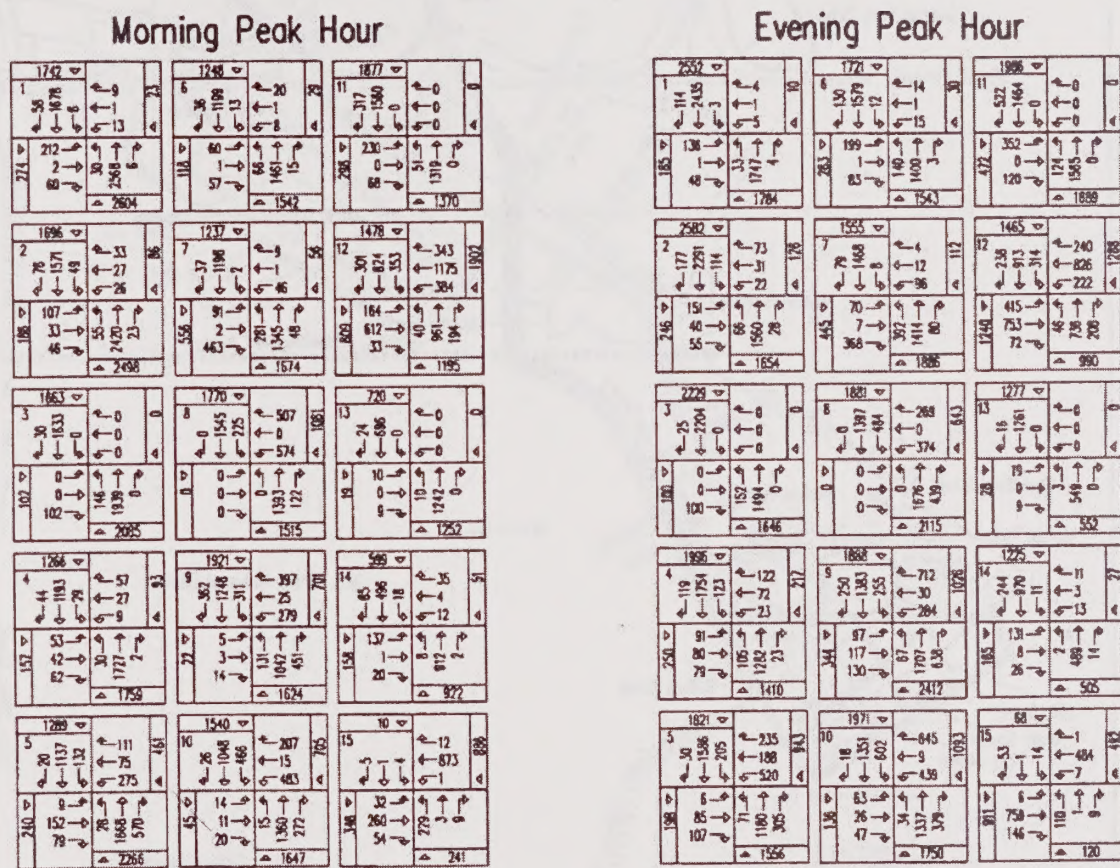
Figure 13
Existing Intersection Reference Numbers



Circulation - Figure 13 - Existing Intersection Reference Numbers



Figure 14
Existing Peak Hour Turning Movement Volumes



Kunzman Associates

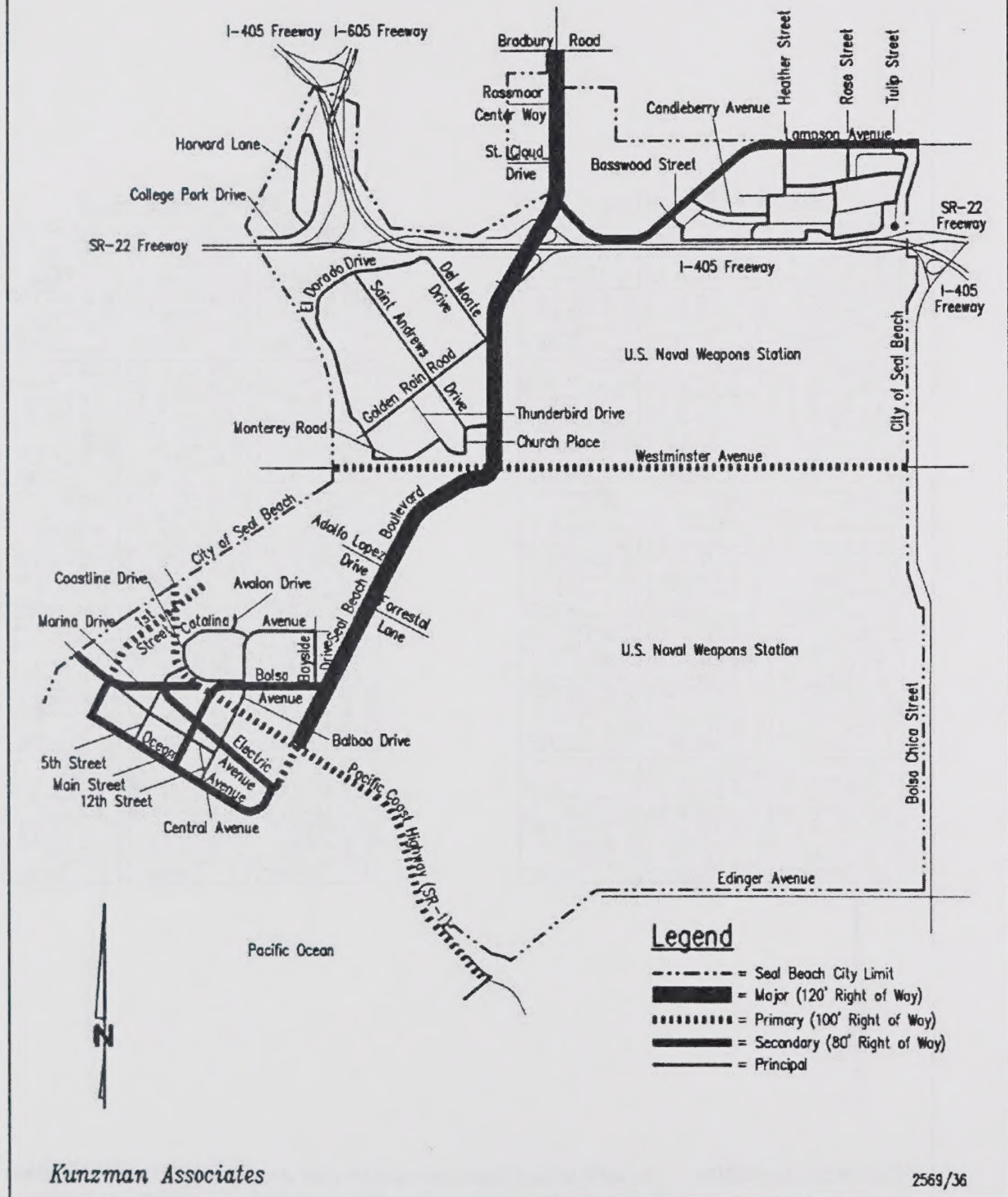
Intersection reference numbers are in upper left corner of turning movement boxes.

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Circulation - Figure 14 - Existing Peak Hour Turning Movement Volumes

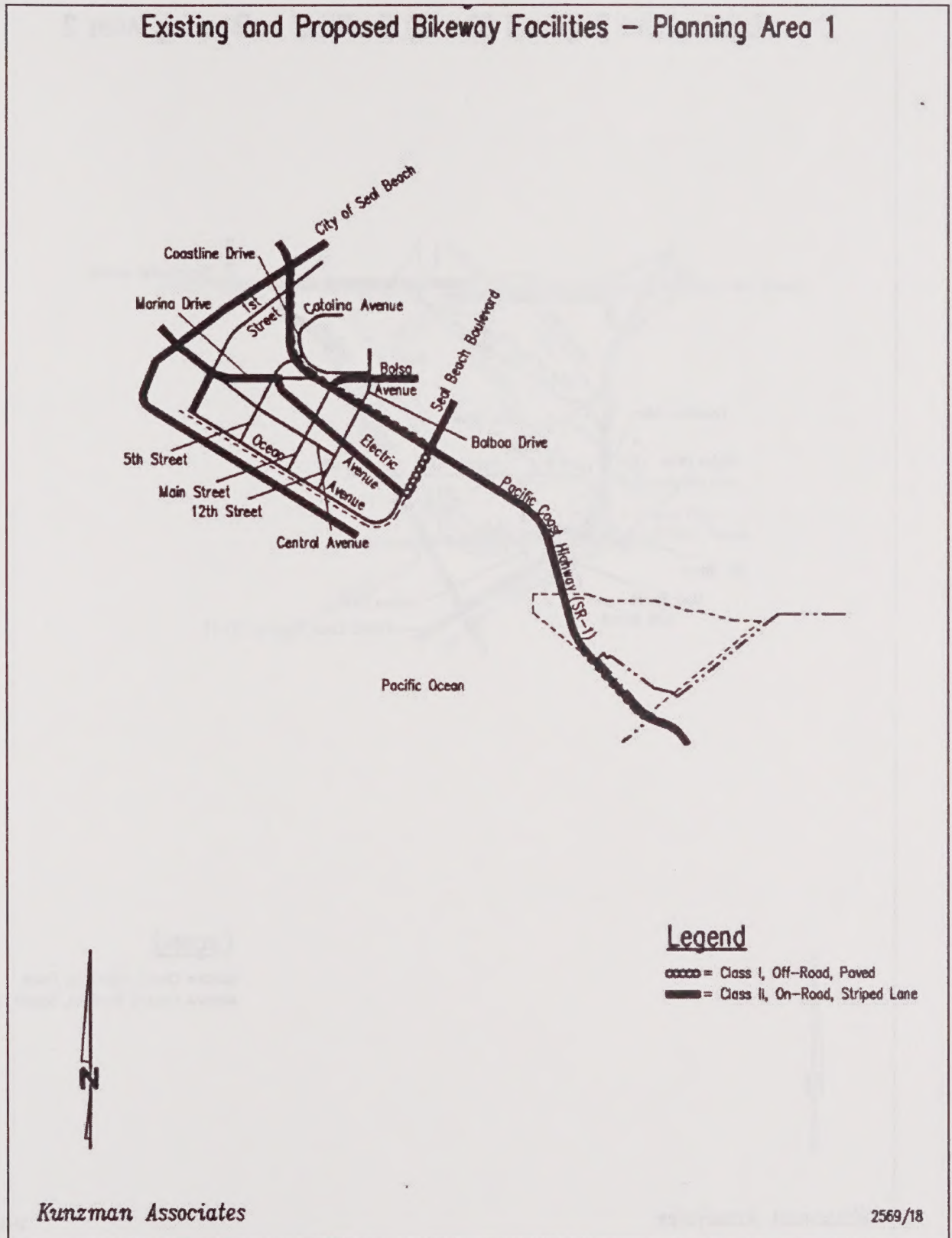


Figure 15
City of Seal Beach General Plan Circulation Element



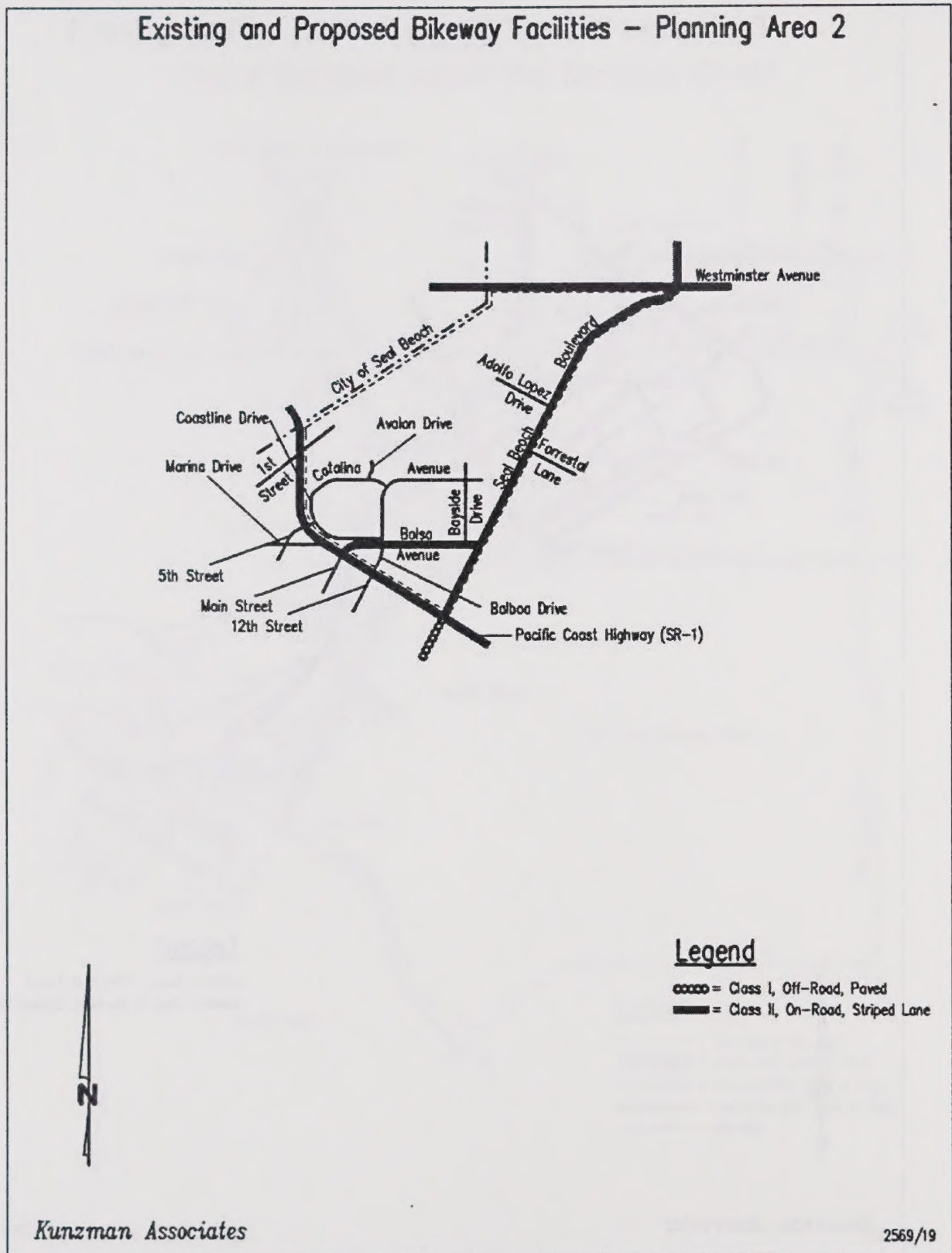
Circulation - Figure 15 - General Plan Circulation Element





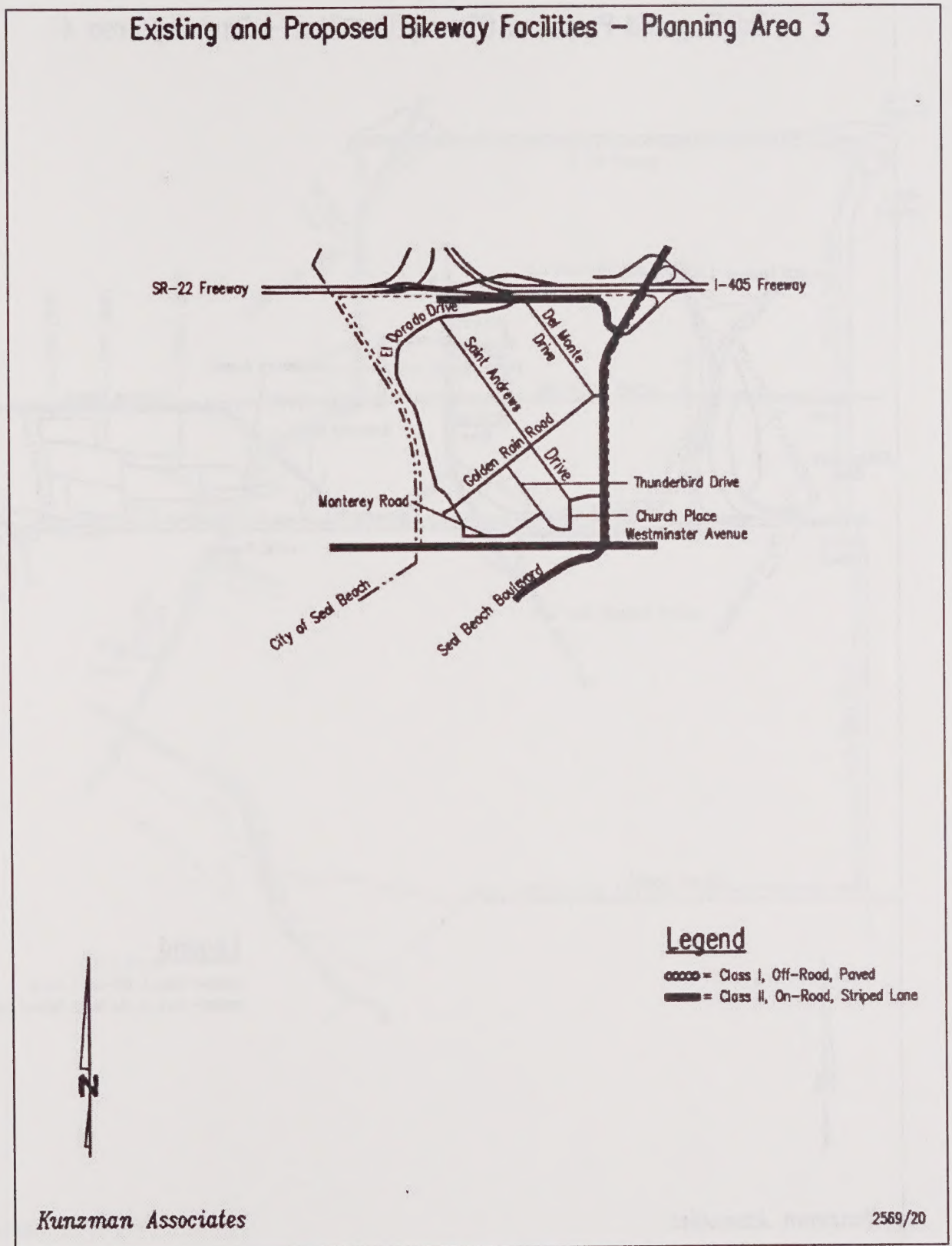
Circulation - Figure 16 - Existing and Proposed Bikeway Facilities – Planning Area 1





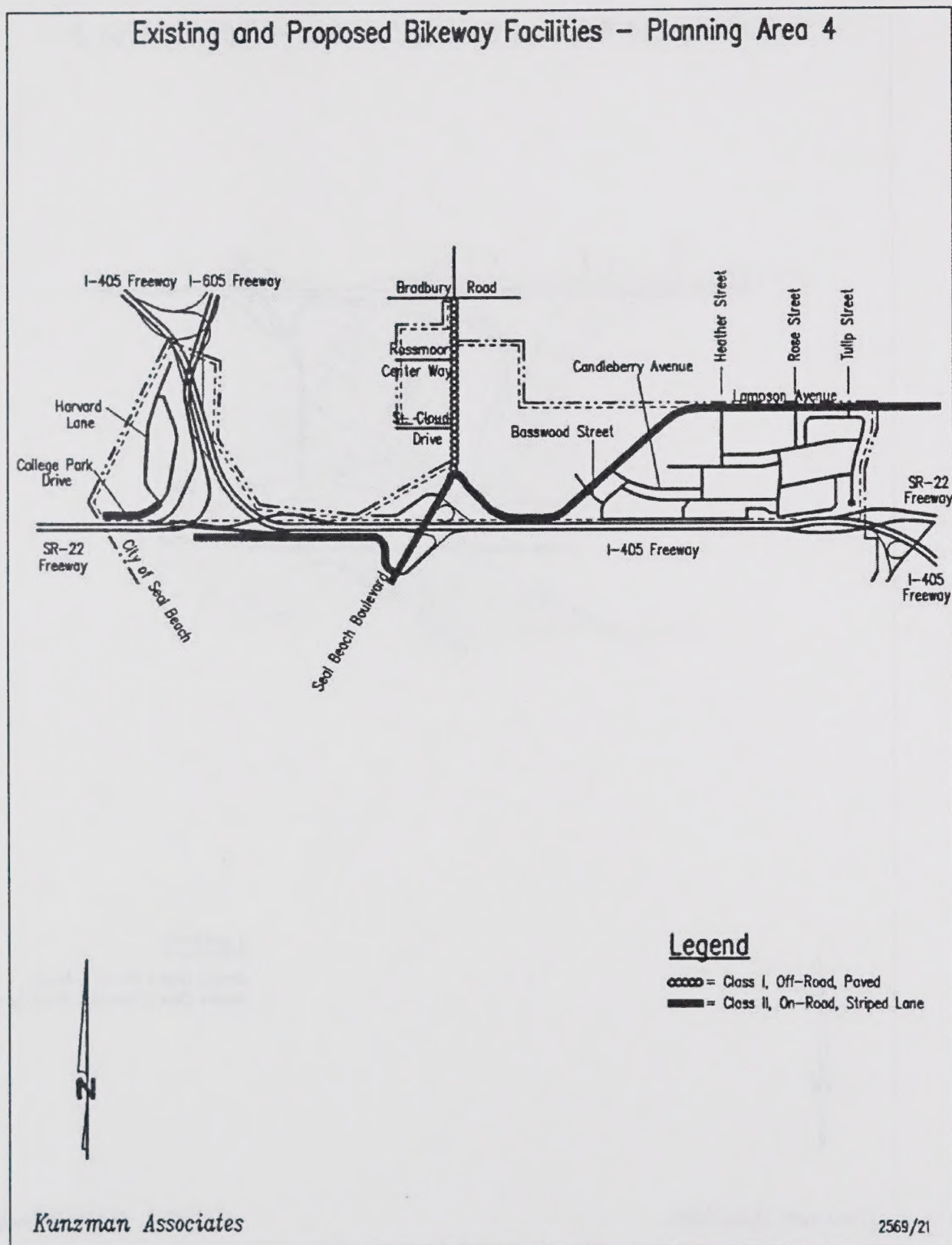
Circulation - Figure 17 - Existing and Proposed Bikeway Facilities – Planning Area 2





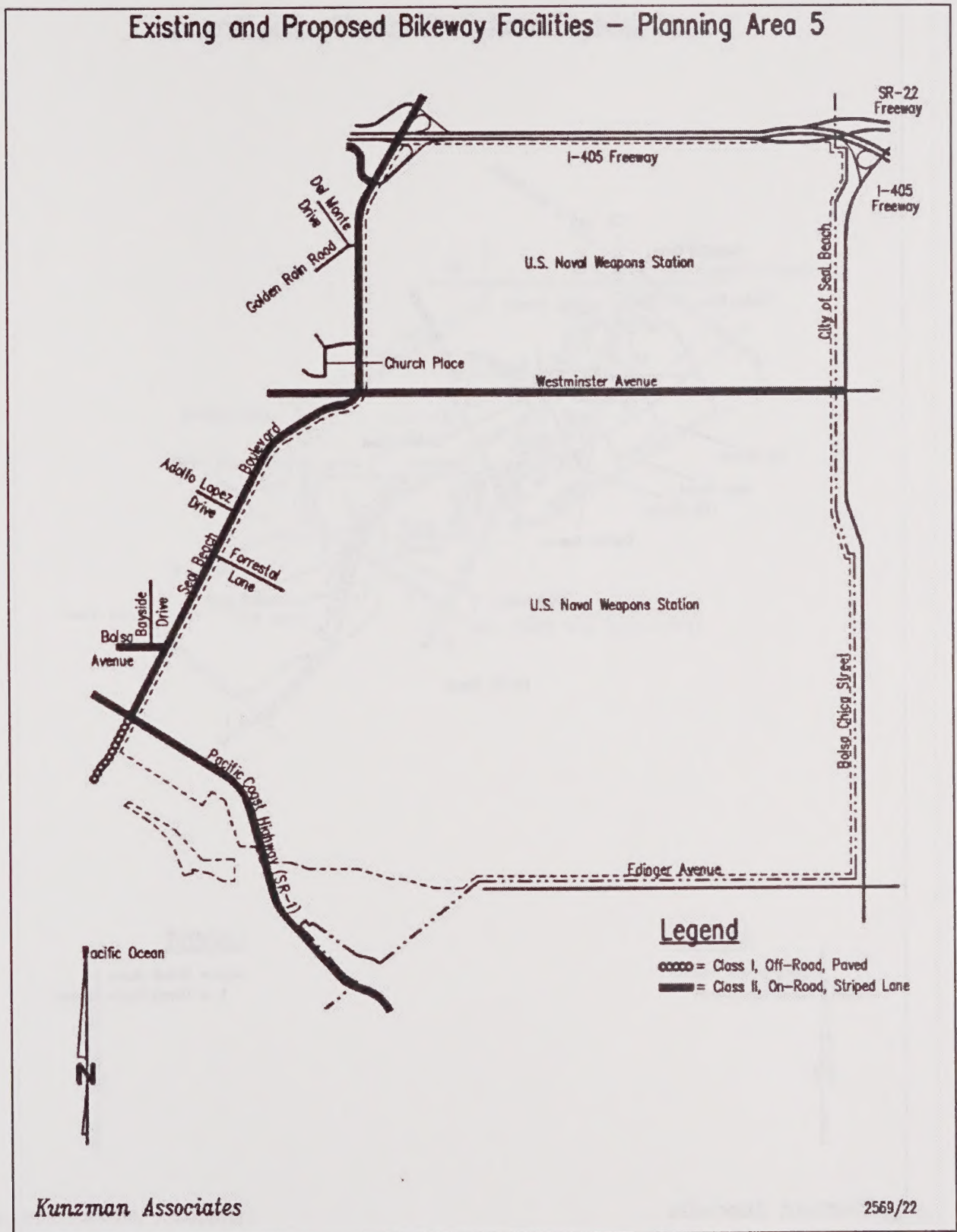
Circulation - Figure 18 - Existing and Proposed Bikeway Facilities – Planning Area 3





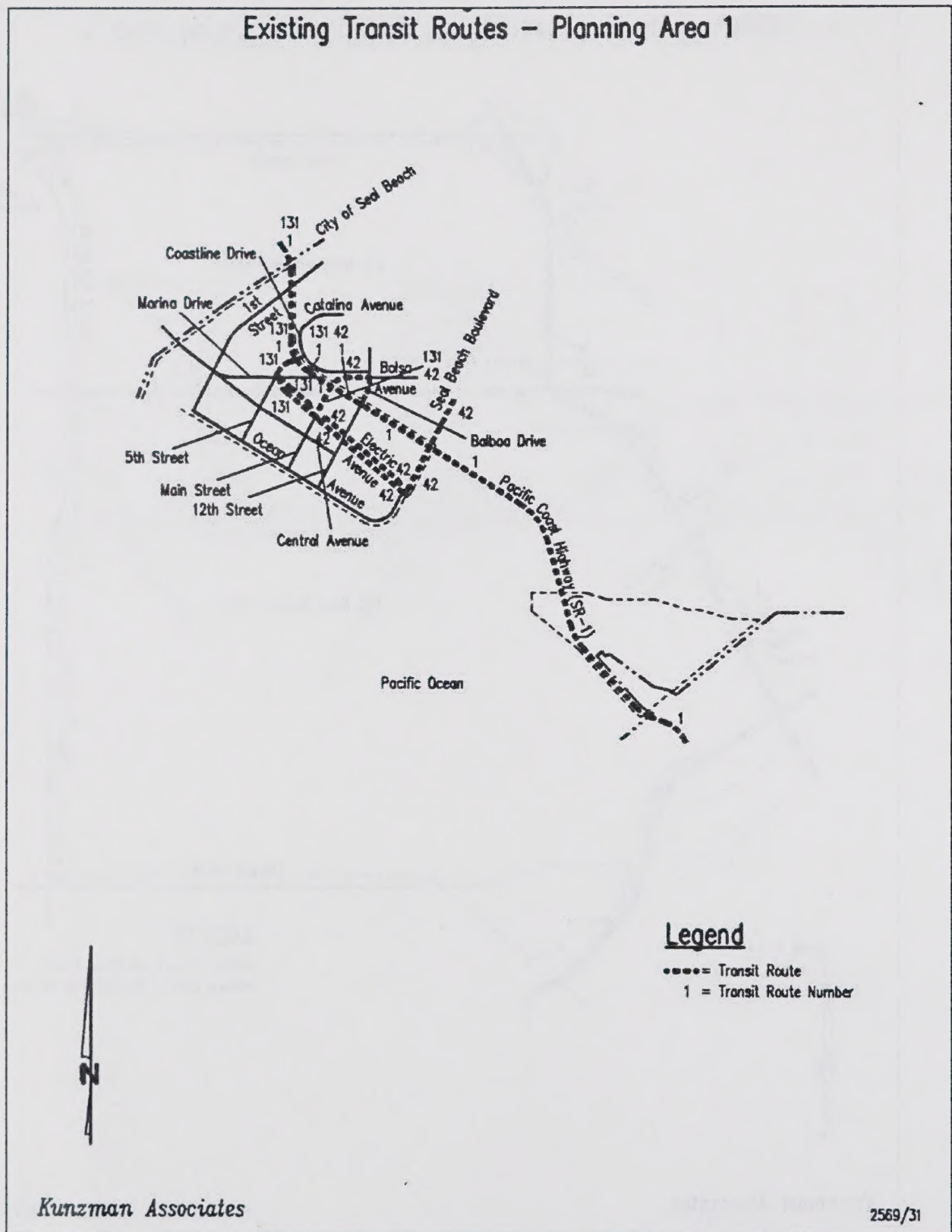
Circulation - Figure 19 - Existing and Proposed Bikeway Facilities – Planning Area 4





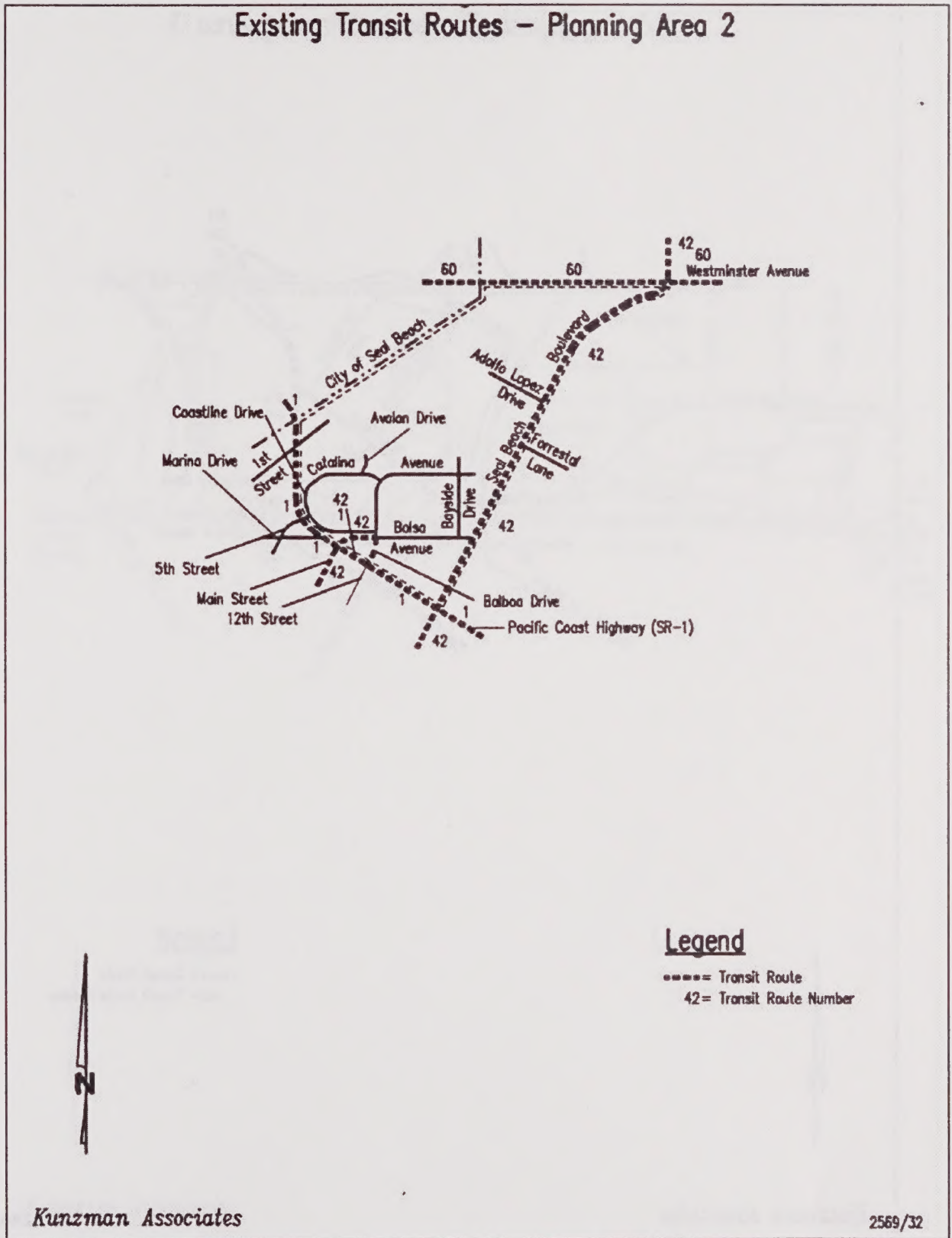
Circulation - Figure 20 - Existing and Proposed Bikeway Facilities – Planning Area 5





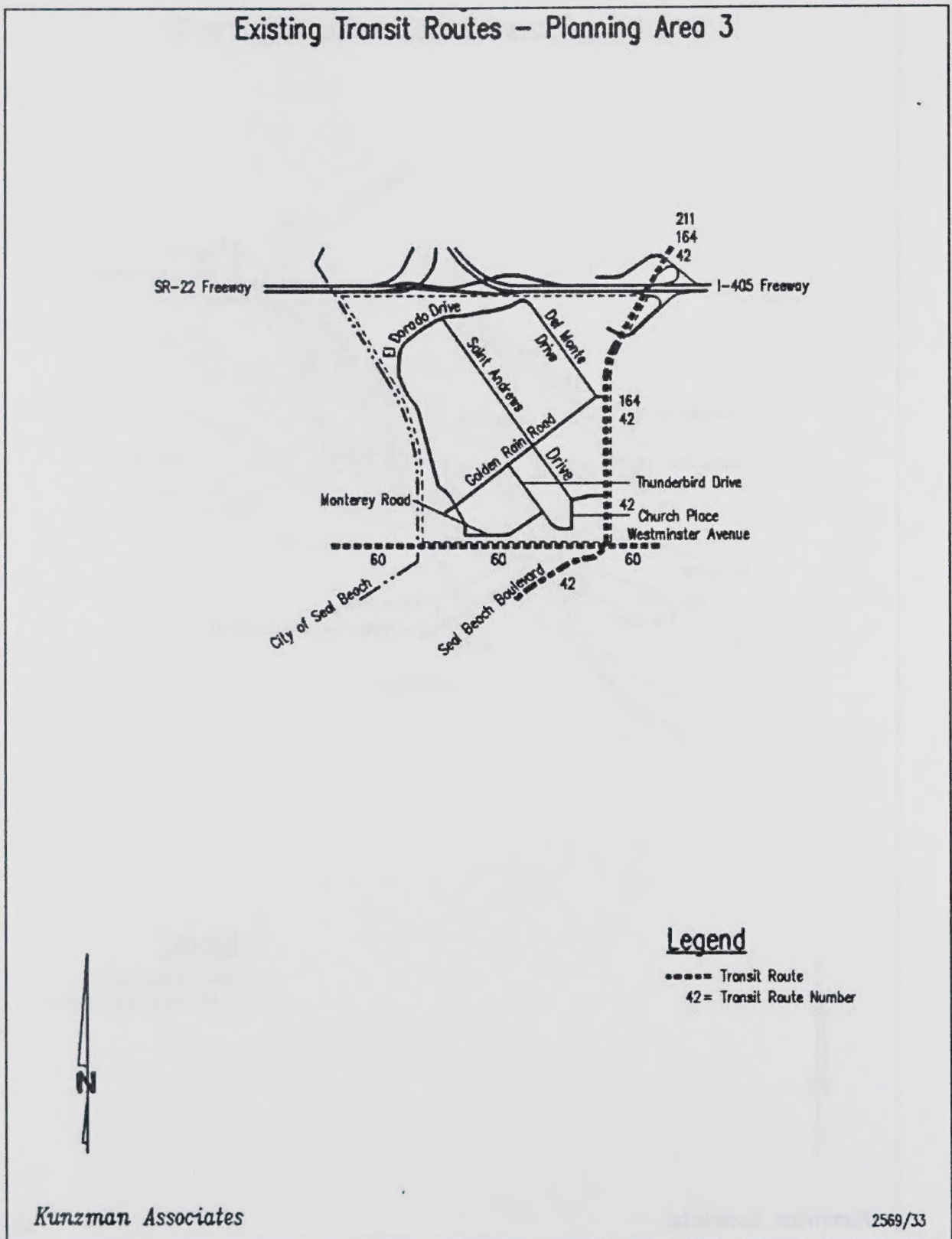
Circulation - Figure 21 - Existing Transit Routes – Planning Area 1





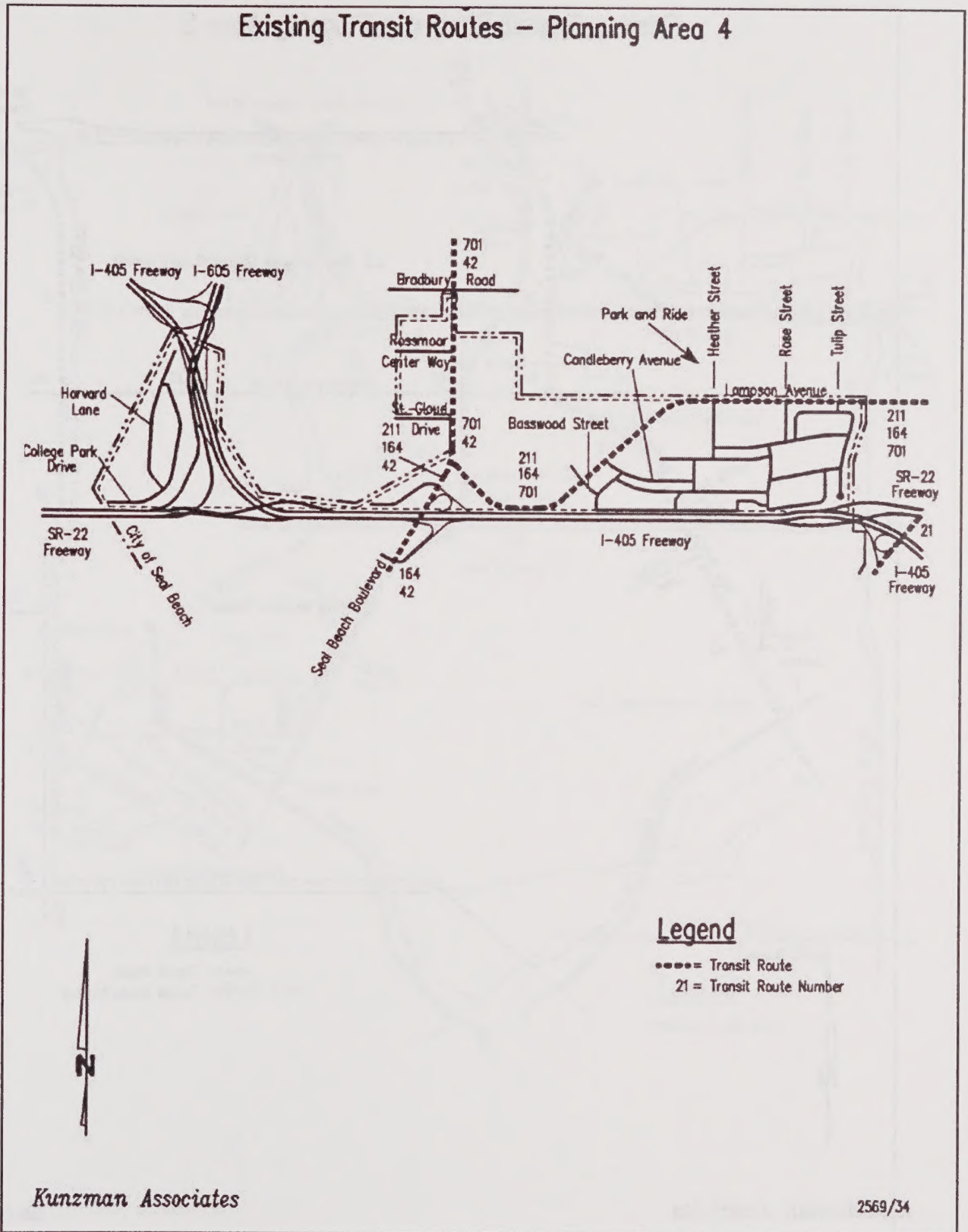
Circulation - Figure 22 - Existing Transit Routes – Planning Area 2





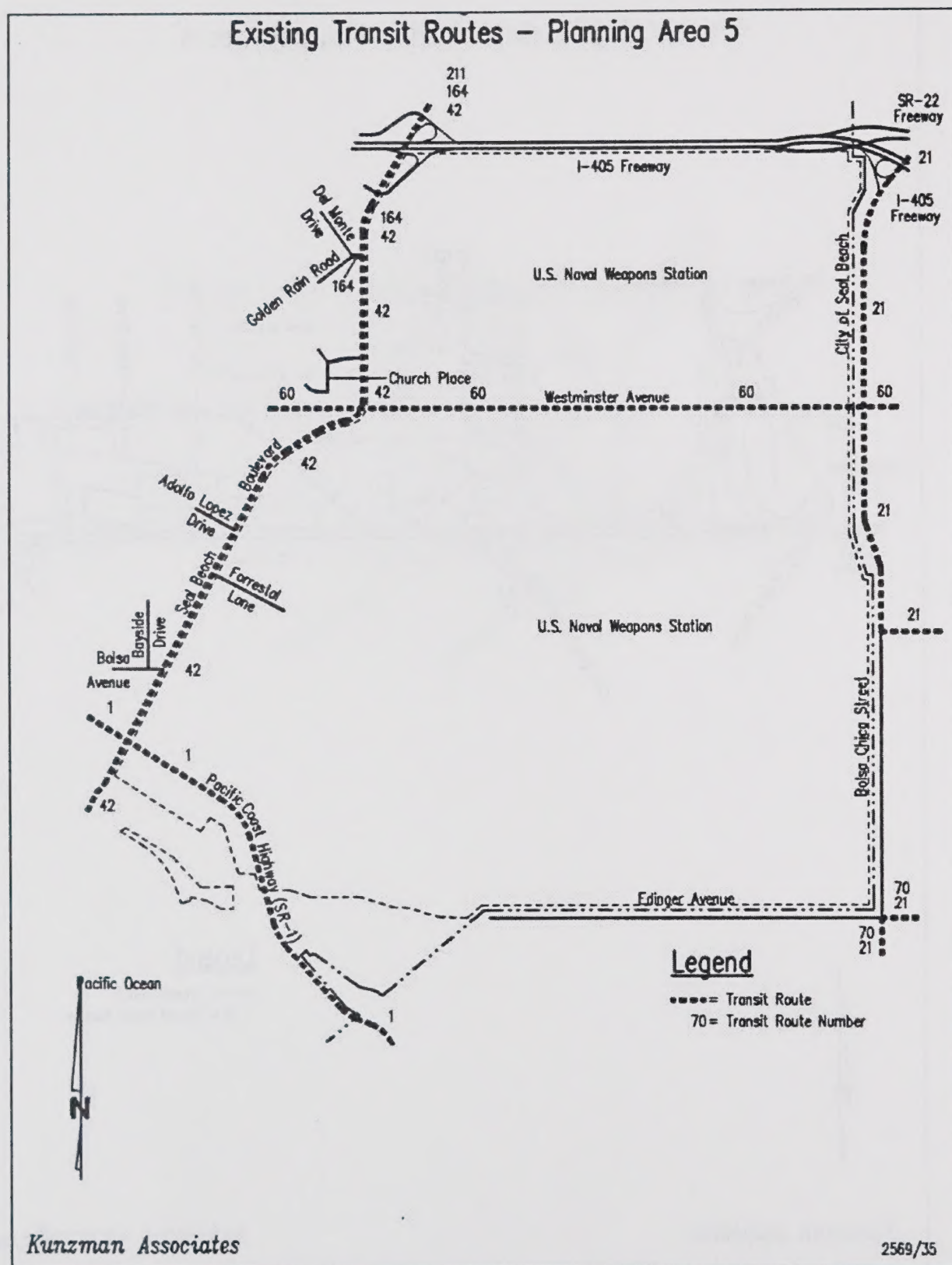
Circulation - Figure 23 - Existing Transit Routes – Planning Area 3





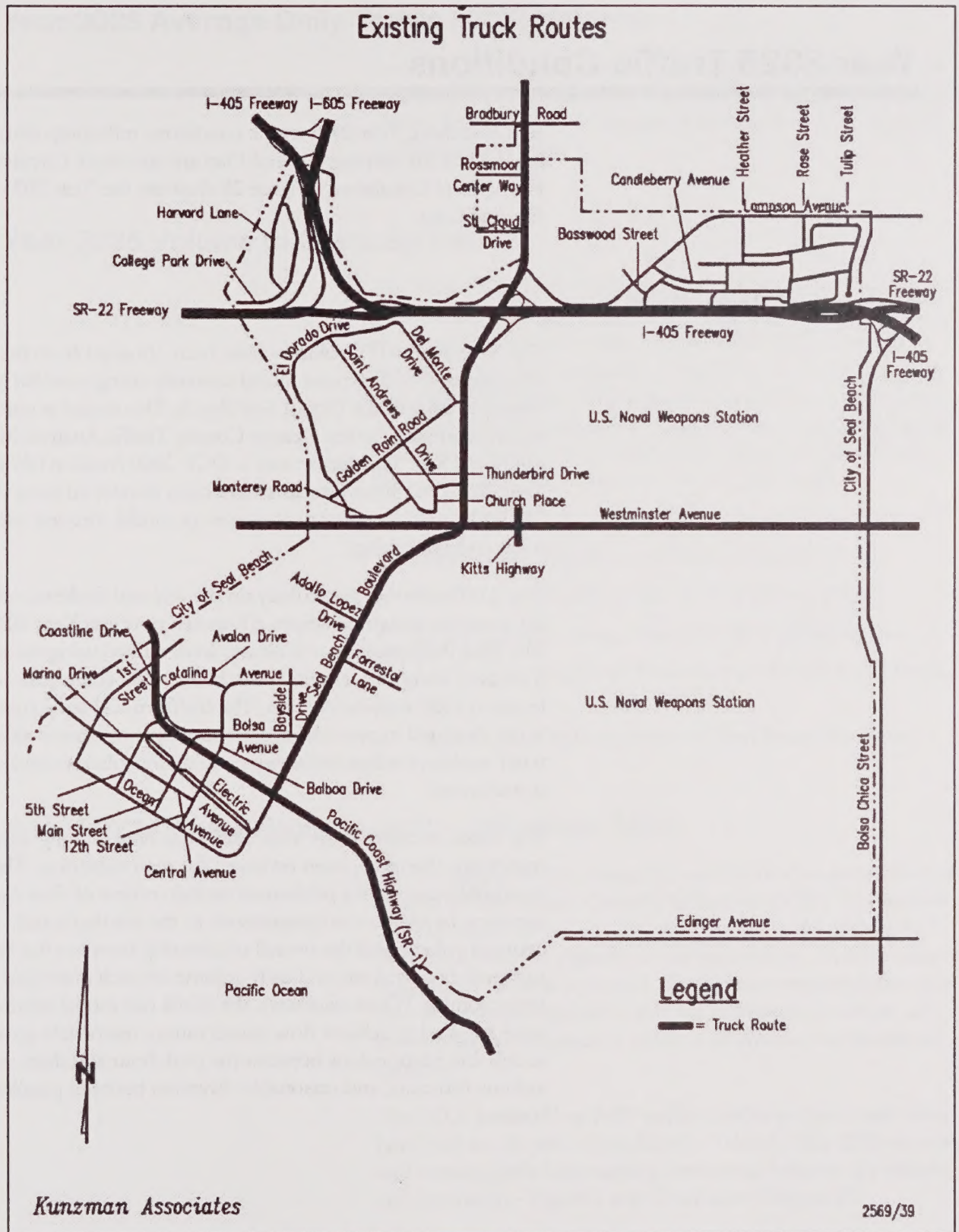
Circulation - Figure 24 - Existing Transit Routes – Planning Area 4





Circulation - Figure 25 - Existing Transit Routes – Planning Area 5





Circulation - Figure 26 - Existing Truck Routes



Year 2025 Traffic Conditions

In this section, Year 2025 traffic conditions reflecting ultimate buildout of the existing General Plan are discussed. Circulation - Figure 1 and Circulation - Figure 28 illustrate the Year 2025 traffic conditions.

Method of Projection

The Year 2025 ADT volumes have been obtained from the subregional travel demand model currently being used for long-range planning in the City of Seal Beach. This model is commonly referred to as the Orange County Traffic Analysis Model (OCTAM 3.1). The data source is OCP-2000 (version 020801). Year 2025 peak hour forecasts have been developed from the OCTAM using accepted procedures for model forecast refinement and smoothing.

The ADT volumes, particularly on the regional facilities, reflect the areawide growth anticipated between now and Year 2025. The Year 2025 peak hour forecasts were refined using the daily forecasts, along with existing peak hour traffic count data collected at each analysis location. The traffic model zone structure is not designed to provide accurate turning movements along arterial roadways unless refinement and reasonableness checking is performed.

The initial estimate of the Year 2025 peak hour turning movements has, therefore, been reviewed for reasonableness. The reasonableness checks performed include review of flow conservation in addition to comparisons to the existing actual counted volume and the overall relationship between the forecast peak hour volume and daily volume on each individual intersection leg. Where necessary, the initial raw model estimates were adjusted to achieve flow conservation, reasonable growth, acceptable relationships between the peak hour and daily traffic volume forecasts, and reasonable diversion between parallel routes.



Year 2025 Average Daily Traffic (ADT) Volumes

For Year 2025 traffic conditions, through traffic for the study area has been determined by utilizing the OCTAM described above. Year 2025 ADT volumes in the study area are depicted in Circulation - Table 1.

Year 2025 Volume to Capacity Ratios

For Year 2025 traffic conditions, volume to capacity ratios have been calculated and are shown in Circulation - Table 1. Volume to capacity ratios are based on City of Seal Beach roadway capacities depicted in Circulation - Table 2 - Roadway Capacities. For Year 2025 traffic conditions, the roadway links in the vicinity of the site are projected to operate within acceptable Levels of Service, except for the following study area roadway links that are projected to operate at Level of Service F:

- Pacific Coast Highway, North City Limits to 1st Street
- Pacific Coast Highway, 1st Street to 5th Street
- Pacific Coast Highway, 5th Street to Marina Drive
- Pacific Coast Highway, Marina Drive to Bolsa Avenue
- Pacific Coast Highway, Bolsa Avenue to Seal Beach Boulevard
- Pacific Coast Highway, South of Seal Beach Boulevard

Year 2025 Intersection Capacity Utilization (ICU)

The technique used to assess the operation of an intersection is known as Intersection Capacity Utilization (ICU). To calculate an ICU value, the volume of traffic using the intersection is compared with the capacity of the intersection. An ICU value is usually expressed as a percent. The percent represents that portion of the hour required to provide sufficient capacity to accommodate all intersection traffic if all approaches operate at capacity.

The ICUs for the Year 2025 traffic conditions have been calculated and are shown in Circulation - Table 5. Year 2025 morning and evening peak hour turning movement volumes are shown on Circulation - Figure 1 and Circulation - Figure 28.



Circulation - Table 4 - Year 2025 Average Daily Traffic (ADT) Volumes and Volume to Capacity Ratios

Roadway	Segment	No. of Lanes	Capacity	ADT	V/C Ratio	LOS
1st Street	Marina Dr. to Pacific Coast Hwy	2U	12,500	7,200	0.58	A
	East of Pacific Coast Hwy.	2U	12,500	2000	0.02	A
5th Street	Marina Drive to Pacific Coast Hwy.	4U	25,000	5,700	0.23	A
	Pacific Coast Hwy to Coastline Dr.	2U	12,500	3,400	0.27	A
Adolfo Lopez Dr	West of Seal Beach Blvd.	2U	12,500	1,500	0.12	A
Basswood St.	South of Lampson Ave.	2U	12,500	4,300	0.34	A
Bolsa Ave.	Pacific Coast Hwy to Seal Beach Blvd.	2U	12,500	8,600	0.69	A
Golden Rain Rd.	West of Seal Beach Blvd.	4D	37,500	14,500	0.39	A
Lampson Ave.	Seal Beach Blvd. to Basswood St.	4D	37,500	20,000	0.53	A
	Basswood St. to East City Limits	4D	37,500	13,500	0.36	A
Main St.	Electric Ave. to Pacific Coast Hwy	2U	12,500	6,100	0.49	A
Marina Ave.	West City Limits to Pacific Coast Hwy	4D	37,500	5,900	0.16	A
Pacific Coast Hwy	North City Limits to 1st St	4D	37,500	85,700	2.29	F
	1st St. to 5th St.	4D	37,500	66,600	1.78	F
	5th St. to Marina Dr.	4D	37,500	65,900	1.76	F
	Marina Dr. to Bolsa Ave.	4D	37,500	65,300	1.74	F
	Bolsa Ave. to Seal Beach Blvd.	4D	37,500	60,300	1.61	F
	South of Seal Beach Blvd.	4D	37,500	54,200	1.45	F
Rossmoor Center Way	West of Seal Beach Blvd.	2U	12,500	4,200	0.34	A
Seal Beach Blvd.	Rossmoor Center Way to St. Cloud Dr.	6D	56,300	36,000	0.64	B
	St. Cloud Dr. to Lampson Ave.	6D	56,300	47,200	0.84	D
	Lampson Ave. to I-405 Fwy	6D	56,300	49,500	0.88	D
	I-405 Fwy to Golden Rain Rd.	6D	56,300	42,300	0.75	C
	Golden Rain Rd. to St. Andrews Dr.	6D	56,300	36,100	0.64	B
	St. Andrews Dr. to Westminster Ave.	6D	56,300	34,500	0.61	A
	Westminster Ave. to Adolfo Lopez Dr.	6D	56,300	29,100	0.52	A
	Adolfo Lopez Dr. to Bolsa Ave.	6D	56,300	27,900	0.50	A
	Bolsa Ave. to Pacific Coast Hwy.	6D	56,300	21,900	0.39	A
	Pacific Coast Hwy. to Electric Ave.	2U	12,500	8,300	0.66	A
St. Cloud Dr.	West of Seal Beach Blvd.	4U	25,000	10,200	0.41	A
Westminster Ave.	West City Limits to Road A	4D	37,500	27,100	0.72	B
	Road A to Seal Beach Blvd.	4D	37,500	27,200	0.73	B
	East of Seal Beach Blvd.	4D	37,500	24,100	0.64	A
	West of Bolsa Chica St.	4D	37,500	25,700	0.69	B



Circulation - Table 5 - Year 2025 Intersection Capacity Utilization (ICU) and Level of Service (LOS)

Intersection	Traffic Control ³	Intersection Approach Lanes ¹												Peak Hour ICU-LOS ²	
		Northbound			Southbound			Eastbound			Westbound			AM	PM
		L	T	R	L	T	R	L	T	R	L	T	R		
Pacific Coast Hwy at:															
1 st St. (EW)	TS	1	2	1	1	2	1	1.5	0.5	1	0	1	0	147.5-F	138.2-F
5 th St. (EW)	TS	1	2	1	1	2	1	1	1	1	0	1	0	126.1-F	128.1-F
Marina Dr. (EW) Main St./Bolsa Ave. (EW)	CSS	1	2	0	0	2	1	0	0	1	0	0	0	94.6-E	117.3-F
Seal Beach Blvd. (EW)	TS	1	2	1	1	2	1	1	1	1	1	1	1>	84.4-D	96.4-E
	TS	1	2	1>	1	2	1	1	2	0	2	1	1	95.6-E	95.4-E
Seal Beach Blvd. (NS) at:															
Rossmoor Center Way (EW)	TS	1	3	0	1	3	0	1	1	0	0	1	0	43.4-A	65.9-B
St. Cloud Dr. (EW)	TS	1	3	0	1	3	0	1	0.5	1.5	1	1	0	69.8-B	83.5-D
Lampson Ave. (EW)															
- without improvements	TS	0	3	1>	2	2	0	0	0	0	2	0	1>	80.5-D	69.1-B
- with improvements	TS	0	3	1>	2	3	0	0	0	0	2	0	1>	67.8-B	69.1-B
I-405 Fwy NB Ramps (EW)															
- without improvements	TS	2	2	1>>	1	2	1	1	1	1	1.5	0.5	1	75.7-C	111.0-F
- with improvements	TS	2	3	1>>	1	3	1	1	1	1	1.5	0.5	1	66.5-B	88.6-D
I-405 Fwy SB Ramps (EW)															
- without improvements	TS	1	2	1	1	2	0	0.5	0.5	1	1.5	0.5	1>>	101.4	109.5-F
- with improvements	TS	1	3	1	2	3	0	0.5	0.5	1	1.5	0.5	1>>	71.6-C	75.6-C
Golden Rain Rd. (EW)	TS	1	3	0	0	3	1	2	0	1	0	0	0	49.3-A	56.0-A
Westminster Ave. (EW)															
- without improvements	TS	1	3	0	1	3	1	1	2	1	1	2	1	102.3-F	100.4-F
- with improvements	TS	1	3	1	2	3	1	2	3	0	2	2	1	81.3-D	72.0-C
Adolfo Lopez Dr. (EW)	CSS	1	3	0	0	3	1	1	0	1	0	0	0	32.4-A	33.6-A
Bolsa Ave. (EW)	TS	1	3	1	1	3	1	1	1	0	1	1	0	38.6-A	36.7-A
Basswood St. (NS) at:															
Lampson Ave. (EW)	TS	1	1	0	0	1	0	1	2	0	1	2	0	53.8-A	48.5-A

1 When a right turn lane is designated, the lane can either be striped or unstriped. To function as a right turn lane, there must be sufficient width for right turning vehicles outside the through lanes.

L=left, T=through, 4=right, >=right turn overlap, >>=free right turn

2 ICU-LOS=Intersection Capacity Utilization-Level of Service

3 TS=traffic signal

CSS=cross street stop



For Year 2025 traffic conditions, the study area intersections are projected to operate at Level of Service D or better during the peak hours, except for the following study area intersections, which are projected to operate at Level of Service E/F during the peak hours, without improvements:

- Pacific Coast Highway (NS) at:
- 1st Street (EW)
- 5th Street (EW)
- Marina Drive (EW)
- Main Street/Bolsa Avenue (EW)
- Seal Beach Boulevard (EW)
- Seal Beach Boulevard (NS) at:
- I-405 Freeway NB Ramps (EW)
- I-405 Freeway SB Ramps (EW)
- Westminster Avenue (EW)

The following study area intersection improvements should be included within the City of Seal Beach Capital Improvement Program (CIP):

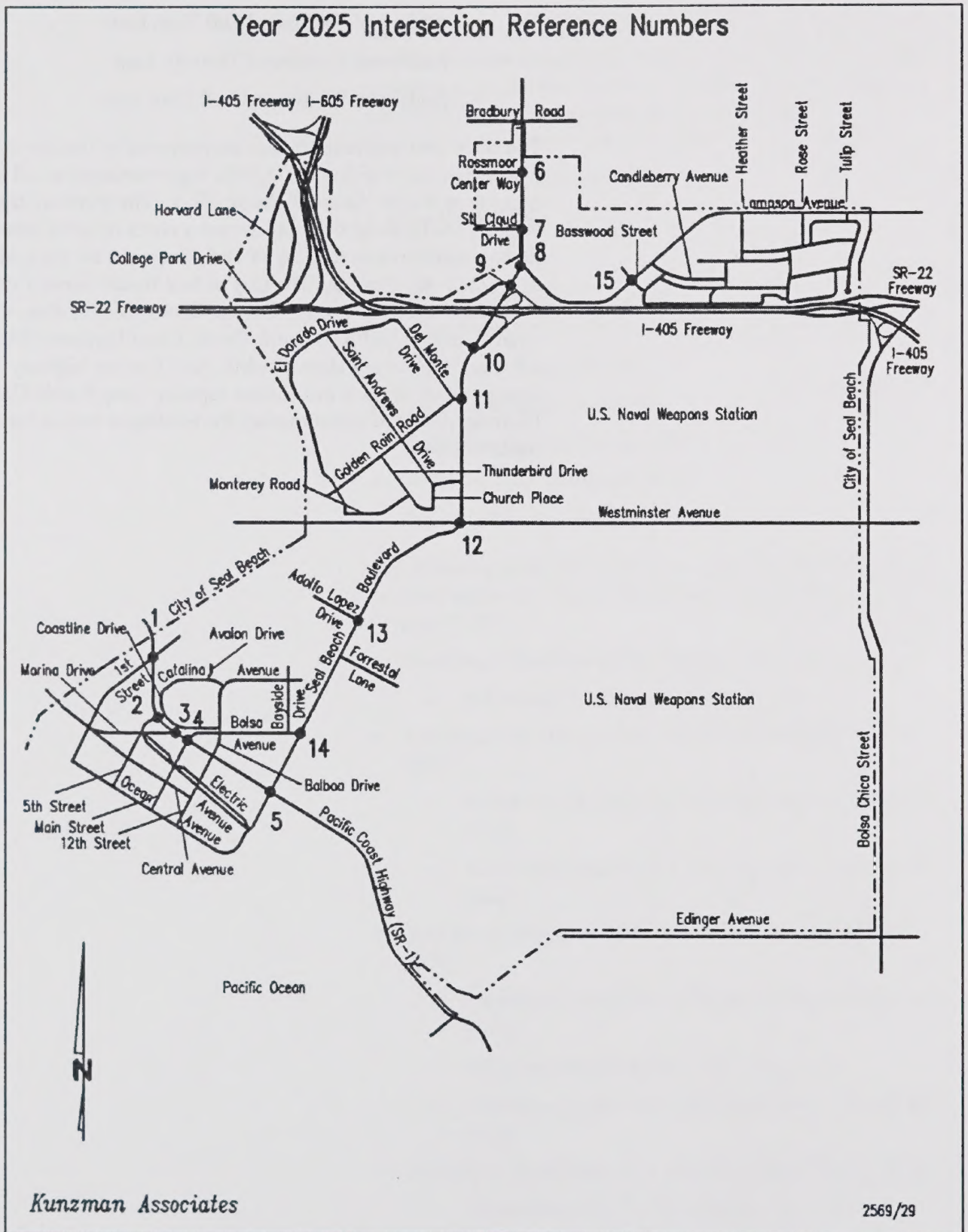
- Seal Beach Boulevard (NS) at Lampson Avenue (EW)
 - Additional Southbound Through Lane
- Seal Beach Boulevard (NS) at I-405 Freeway NB Ramps (EW)
 - Additional Northbound Through Lane – Bridge Widening
 - Additional Southbound Through Lane – Bridge Widening
- Seal Beach Boulevard (NS) at I-405 Freeway SB Ramps (EW)
 - Additional Northbound Through Lane – Bridge Widening
 - Additional Southbound Left Turn Lane
 - Additional Southbound Through Lane – Bridge Widening
- Seal Beach Boulevard (NS) at Westminster Avenue (EW)
 - Northbound Right Turn Lane
 - Additional Southbound Left Turn Lane



- Additional Eastbound Left Turn Lane
- Additional Eastbound Through Lane
- Additional Westbound Left Turn Lane

The study area intersections that are projected to operate at worse than Level of Service D (with improvements) are all located along Pacific Coast Highway (SR-1). The relatively high levels of traffic along this corridor are a direct result of increased development outside the City of Seal Beach and the congestion along the I-405 Freeway. The City of Seal Beach General Plan Circulation Element and the Orange County Master Plan of Arterial Highways (MPAH) depict Pacific Coast Highway (SR-1) as a Primary highway (4 lanes divided). As a Primary highway (4 lanes divided), there is insufficient capacity along Pacific Coast Highway (SR-1) to accommodate the existing as well as future traffic volumes.



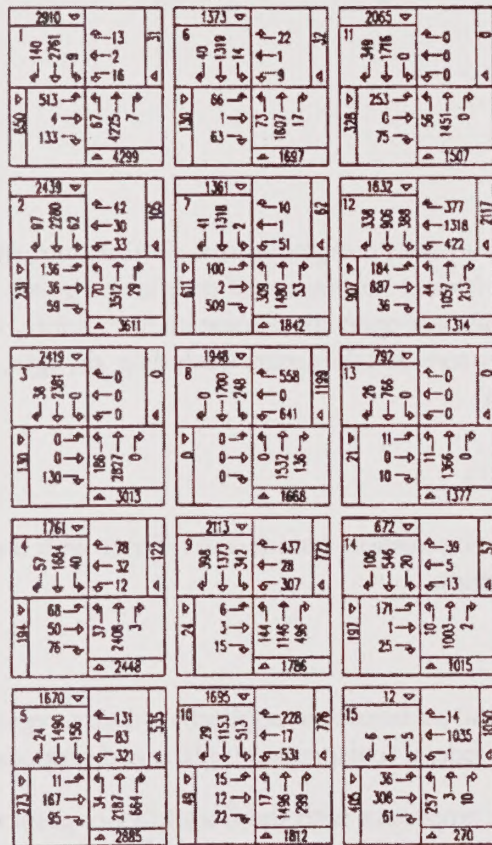


Circulation - Figure 27 - Year 2025 Intersection Reference Numbers

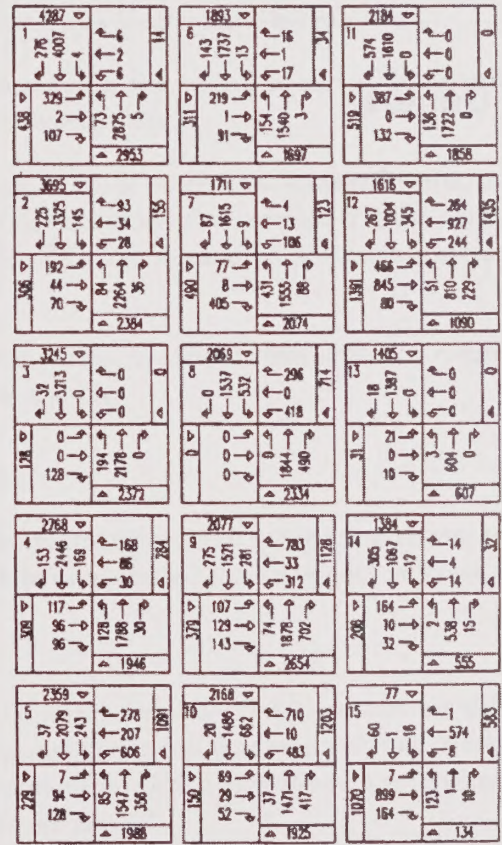


Year 2025 Peak Hour Turning Movement Volumes

Morning Peak Hour



Evening Peak Hour



Kunzman Associates

Intersection reference numbers are in upper left corner of turning movement boxes.

2569/bbas

Circulation - Figure 28 - Year 2025 Peak Hour Turning Movement Volumes

Goals, Objectives, and Policies

The following goals, objectives, and policies form the basis for providing a circulation system that adequately serves the development intensity anticipated in the Land Use Element. The goal for the Circulation Element expresses the importance of the circulation system to the quality of life and the vitality of the local economy, and sets a high standard for its performance.

General

Goal:

Provide and maintain a comprehensive circulation system that facilitates the efficient movement of people and goods throughout the City and near open space habitats for wildlife, while minimizing environmental impacts (including air, light, and noise pollution).

Objective:

Ensure that the circulation system is in balance with the City's Land Use Element.

Policies:

Monitor and participate in applicable county, regional, state, and federal transportation plans and proposals.

Maintain compliance with the County's Congestion Management Plan (CMP) and Growth Management Plan (GMP).

Review implementation programs that coordinate the transportation needs and requirements of the City with those of other public agencies in order to ensure that the overall circulation plan of the City is effective, efficient, and safe.

Develop and implement an annual Capital Improvement Program (CIP) for transportation system projects.



Objective:

Provide adequate capacity for the City's circulation needs while minimizing negative impacts, including environmental impacts needing mitigation.

Policies:

Maintain circulation system standards for roadways and intersection classifications, right-of-way width, pavement width, design speed, capacity, maximum grades, and associated features such as medians and bicycle lanes.

Develop a circulation system that enhances environmental amenities and scenic areas.

Maintain primary truck routes that sustain an effective transport of commodities while minimizing the negative impacts on local circulation and on noise-sensitive land uses.

Utilize Caltrans and City design criteria for any future truck routes within the City.

Objective:

Provide a circulation/transportation system that enhances and minimizes response time needed for emergency vehicles.

Policies:

Ensure that primary and secondary roadways are able to be used for evacuating persons from their homes during emergency conditions or for ingress when emergency response units are needed.

Goal:

Create attractive circulation corridors to enhance the City's image.

Objective:

Preserve rights-of-way along circulation corridors to provide landscaped parkways and setback areas.



Policies:

Enhance street design standards to promote attractive circulation corridors.

Coordinate a signage program to direct motorists to City activity centers from freeways.

Provide landscaped medians on major arterials, when appropriate.

Provide upkeep of the City's streets and parkways based upon an established maintenance schedule.

Promote the undergrounding of utilities along travel routes.

Support the protection and enhancement of view corridors.

Level of Service

Goal:

Provide a circulation system that supports existing, approved, and planned land uses throughout the City while maintaining a desired Level of Service on all streets and at all intersections.

Objective:

Comply with adopted performance standards for acceptable Levels of Service.

Policies:

Maintain a citywide Level of Service (LOS) not exceeding LOS D for roadway segments and intersections during the peak hours. The study area intersections that are projected to operate at worse than Level of Service D (with improvements) are all located along Pacific Coast Highway (SR-1). The relatively high levels of traffic along this corridor are a direct result of increased development outside of the City of Seal Beach and the congestion along the I-405 Freeway. The City of Seal Beach General Plan Circulation Element and the Orange County Master Plan of Arterial Highways (MPAH) depict Pacific Coast Highway (SR-1) as a Primary highway (4 lanes divided). As a Primary highway (4 lanes divided), there is insufficient capacity along Pacific



Coast Highway (SR-1) to accommodate the existing as well as future traffic volumes.

Coordinate transportation improvements along Pacific Coast Highway (SR-1) with Caltrans in a manner that minimizes disruptions to the community.

Objective:

Ensure that the location, intensity, and timing of development are consistent with the provision of adequate transportation infrastructure and standards defined in the Growth Management Element.

Policies:

Assess all development projects in order to identify their traffic impacts and require that they pay their fair share of the system improvements necessary to accommodate traffic generated by the project.

Limit the number of driveways on arterial streets to reduce vehicular conflict and facilitate traffic flow.

Require new development to install traffic signals at intersections on arterials that, based on individual study, are shown to satisfy traffic signal warrants.

Promote the use of traffic signal coordination within the City and with adjacent jurisdictions.

Regional Transportation

Goal:

Support development of regional transportation facilities that ensure the safe and efficient movement of people and goods from within the City to areas outside its boundaries, and that accommodate the regional travel demands of developing areas outside the City, while minimizing air and noise pollution and other environmental impacts.

Objective:

Support the completion of the Orange County Master Plan of Arterial Highways (MPAH).



Policies:

Work with adjacent cities to ensure that the traffic impacts of development projects do not adversely impact the City of Seal Beach.

Coordinate traffic signal synchronization citywide and with adjacent jurisdictions.

Objective:

Enhance the accessibility to the regional transportation system.

Policies:

Improve access to and across the I-405 Freeway.

Support the addition of capacity and noise mitigation improvements such as high-occupancy vehicles (HOV) lanes, general purpose lanes, auxiliary lanes, and noise barriers to the I-405 Freeway.

Maintain a proactive and assertive role with appropriate agencies dealing with regional transportation issues affecting the City.

Maintain a network of truck routes on arterial streets.

Transportation Demand Management (TDM)

Goal:

Develop and encourage a TDM system to assist in mitigating traffic impacts and in maintaining a desired Level of Service on the circulation system, while minimizing air pollution and other environmental impacts.

Objective:

Pursue transportation management strategies that can maximize vehicle occupancy, minimize average trip length, and reduce the number of vehicle trips.



Policies:

Encourage non-residential developments to provide employee incentives for utilizing alternatives to the conventional automobile (e.g., carpools, vanpools, buses, bicycles, and walking).

Encourage the implementation of employer TDM requirements included in the Southern California Air Quality Management Plan.

Encourage industry to use flextime, staggered working hours, and other means to lessen commuter traffic.

Encourage the use of multiple-occupancy vehicle programs for shopping and other uses to reduce traffic.

Support national, state, and regional legislation directed at encouraging the use of carpools and vanpools.

Promote ridesharing through publicity and provision of information to the public.

Require that proposals for major new non-residential developments include submission of a TDM plan to the City.

Encourage the development, implementation, and use of new advanced technologies to optimize safe traffic flow and manage traffic congestion.

Public Transportation

Goal:

Maintain participation in a public transit system that provides mobility to City residents and employees as a logical alternative to automobile travel.

Objective:

Encourage improved local and express bus service through the Orange County Transportation Authority (OCTA) to the City.

Policies:

Coordinate with OCTA and other appropriate entities to improve bus service to and within the City.



Encourage the provision of safe, attractive, and clearly identifiable transit stops throughout the community.

Implement and expand, wherever feasible, programs aimed at enhancing the mobility of senior citizens and disabled persons.

Objective:

Require new development that is designed in a manner that facilitates provision or expansion of transit service, provides on-site commercial/recreational facilities to discourage midday travel, and provides on-site public transportation circulation.

Policies:

Encourage developers to work with agencies providing transit service with the objective of maximizing the potential for transit use.

Encourage employers to reduce vehicular trips by offering employee incentives.

Require proposed developments to include transit facilities, such as park-and-ride sites, bus benches, shelters, pads or turnouts, where appropriate, in their improvement plans or as needed in proximity to their development.

Bicycle and Pedestrian Facilities

Goal:

Provide a citywide system of safe, efficient, and attractive bicycle and pedestrian routes for commuter, school, and recreational use.

Objective:

Promote the safety of bicyclists and pedestrians by adhering to citywide standards and practices.

Policies:

Develop citywide standards for construction and maintenance of bikeways and pedestrian walkways.



Develop and adopt a planned bikeway system that is consistent with the County of Orange Master Plan of County-wide Bikeways, and other adopted Master Plans, to assure that local bicycle routes will be compatible with routes of neighboring jurisdictions.

Maintain existing pedestrian facilities and require new development to provide pedestrian walkways between developments, schools, and public facilities.

Where appropriate, require proposed developments adjacent to proposed bikeway routes to include bicycle paths or lanes in their street improvement plans and to construct the bicycle paths or lanes as a condition of approval.

Construct safe, convenient paths for bicycles and pedestrians so as to encourage these alternative forms of transportation.

Require plans for bicycle and pedestrian facilities to give priority to providing continuity and closing gaps in the bikeway and sidewalk network.

Develop programs that encourage the safe utilization of easements and/or rights-of-way along flood control channels, public utilities, railroads, and streets wherever possible for the use of bicycles and/or pedestrians.

Develop a comprehensive pedestrian circulation plan that facilitates pedestrian traffic in major activity areas.

Ensure accessibility of pedestrian facilities to the elderly and disabled.

Require the installation of sidewalks with all new roadway construction and significant reconstruction of existing roadways.

Develop a plan and pursue funding for bicycle support facilities and cycling education/information programs.

Parking

Goal:

Provide sufficient, well-designed, and convenient on-street parking and off-street parking facilities throughout the City.



Objective:

Develop and implement a Parking Management Plan or other program that identifies citywide parking requirements.

Policies:

Consolidate parking, where appropriate, to eliminate the number of ingress and egress points onto arterials.

Consider the use of public/private joint-ventures to provide funding sources for parking facilities.

Improve public access to the coast by providing better transit and parking opportunities.

Support satellite parking sites and shuttle services to minimize congestion and travel demand for special events and temporary activities.

Utilize City programs to address specific parking issues (i.e., Downtown Parking Meter Program).

Coastal Access

Goal:

Maintain Local Coastal Program standards, including the improvement of public coastal access wherever possible.

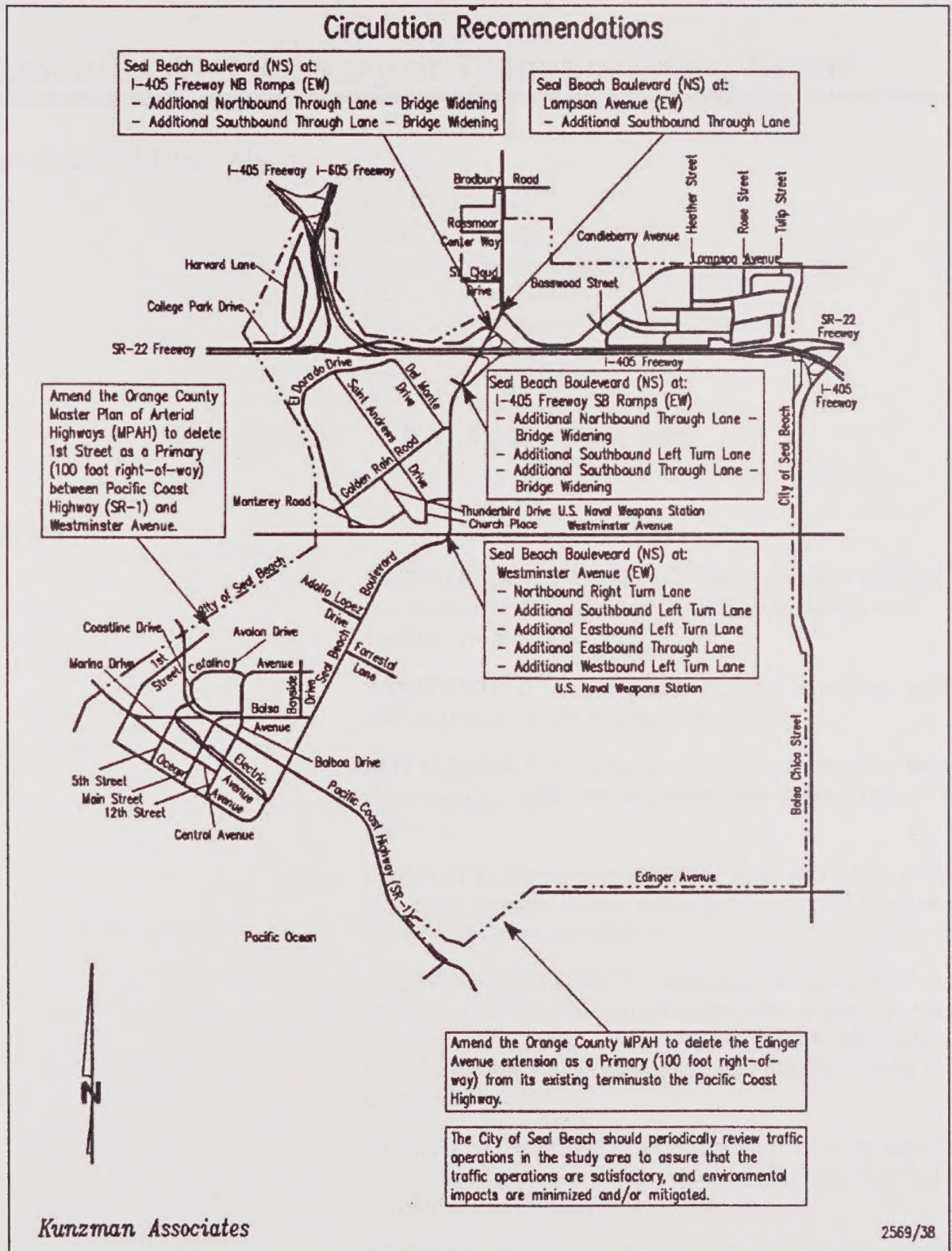
Objective:

Provide better transit and parking opportunities on-street and in designated lots, and/or inland parking with beach transportation.

Policies:

Monitor and attempt to improve the safety of pedestrian crossings along Pacific Coast Highway (SR-1).





Circulation - Figure 29 - Circulation Recommendations



Appendix A – Glossary of Transportation Terms

Common Abbreviations

AC:	Acres
ADT:	Average Daily Traffic
Caltrans:	California Department of Transportation
DU:	Dwelling Unit
ICU:	Intersection Capacity Utilization
LOS:	Level of Service
TSF:	Thousand Square Feet
V/C	Volume/Capacity
VMT:	Vehicle Miles Traveled

Terms

AVERAGE DAILY TRAFFIC: The total volume during a year divided by the number of days in a year. Usually only weekdays are included.

BANDWIDTH: The number of seconds of green time available for through traffic in a signal progression.

BOTTLENECK: A constriction along a travelway that limits the amount of traffic that can proceed downstream from its location.

CAPACITY: The maximum number of vehicles which can be reasonably expected to pass over a given section of a lane or a roadway in a given time period.

CHANNELIZATION: The separation or regulation of conflicting traffic movements into definite paths of travel by the use of pavement markings, raised islands, or other suitable means to facilitate the safe and orderly movements of both vehicles and pedestrians.

CLEARANCE INTERVAL: Nearly same as yellow time. If there is an all red interval after the end of a yellow, then that is also added into the clearance interval.

CORDON: An imaginary line around an area across which vehicles, persons, or other items are counted (in and out).



CYCLE LENGTH: The time period in seconds required for one complete signal cycle.

CUL-DE-SAC STREET: A local street open at one end only, and with special provisions for turning around.

DAILY CAPACITY: The daily volume of traffic that will result in a volume during the peak hour equal to the capacity of the roadway.

DAILY TRAFFIC: Same as average daily traffic.

DELAY: The time consumed while traffic is impeded in its movement by some element over which it has no control, usually expressed in seconds per vehicle.

DEMAND RESPONSIVE SIGNAL: Same as traffic-actuated signal.

DENSITY: The number of vehicles occupying in a unit length of the through traffic lanes of a roadway at any given instant. Usually expressed in vehicles per mile.

DETECTOR: A device that responds to a physical stimulus and transmits a resulting impulse to the signal controller.

DESIGN SPEED: A speed selected for purposes of design. Features of a highway, such as curvature, superelevation, and sight distance (upon which the safe operation of vehicles is dependent) are correlated to design speed.

DIRECTIONAL SPLIT: The percent of traffic in the peak direction at any point in time.

DIVERSION: The rerouting of peak hour traffic to avoid congestion.

FIXED TIME SIGNAL: Same as pretimed signal.

FORCED FLOW: Opposite of free flow.

FREE FLOW: Volumes are well below capacity. Vehicles can maneuver freely and travel is unimpeded by other traffic.

GAP: Time or distance between successive vehicles in a traffic stream, rear bumper to front bumper.

HEADWAY: Time or distance spacing between successive vehicles in a traffic stream, front bumper to front bumper.



INTERCONNECTED SIGNAL SYSTEM: A number of intersections that are connected to achieve signal progression.

LEVEL OF SERVICE: A qualitative measure of a number of factors, which include speed and travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience, and operating costs.

LOOP DETECTOR: A vehicle detector consisting of a loop of wire embedded in the roadway, energized by alternating current and producing an output circuit closure when passed over by a vehicle.

MINIMUM ACCEPTABLE GAP: Smallest time headway between successive vehicles in a traffic stream into which another vehicle is willing and able to cross or merge.

MULTI-MODAL: More than one mode; such as automobile, bus transit, rail rapid transit, and bicycle transportation modes.

OFFSET: The time interval in seconds between the beginning of green at one intersection and the beginning of green at an adjacent intersection.

PLATOON: A closely grouped component of traffic that is composed of several vehicles moving, or standing ready to move, with clear spaces ahead and behind.

ORIGIN-DESTINATION SURVEY: A survey to determine the point of origin and the point of destination for a given vehicle trip.

PASSENGER CAR EQUIVALENTS (PCE): One car is one Passenger Car Equivalent. A truck is equal to 2- or 3- Passenger Car Equivalents in that a truck requires longer to start, goes slower, and accelerates slower. Loaded trucks have a higher Passenger Car Equivalent than empty trucks.

PRETIMED SIGNAL: A type of traffic signal that directs traffic to stop and go on a predetermined time schedule without regard to traffic conditions.

PROGRESSION: A term used to describe the progressive movement of traffic through several signalized intersections.

SCREEN-LINE: An imaginary line or physical feature across which all trips are counted, normally to verify the validity of mathematical traffic models.



SIGNAL CYCLE: The time period in seconds required for one complete sequence of signal indications.

SIGNAL PHASE: The part of the signal cycle allocated to one or more traffic movements.

STARTING DELAY: The delay experienced in initiating the movement of queued traffic from a stop to an average running speed through a signalized intersection.

TRAFFIC-ACTUATED SIGNAL: A type of traffic signal that directs traffic to stop and go in accordance with the demands of traffic, as registered by the actuation of detectors.

TRIP: The movement of a person or vehicle from one location (origin) to another (destination). For example, from home to store to home is two trips, not one.

TRIP END: One end of a trip at either the origin or destination; i.e. each trip has two trip-ends. A trip-end occurs when a person, object, or message is transferred to or from a vehicle.

TRIP GENERATION RATE: The quality of trips produced and/or attracted by a specific land use stated in terms of units such as per dwelling, per acre, and per 1,000 square feet of floor space.

TRUCK: A vehicle having dual tires on one or more axles, or having more than two axles.

UNBALANCED FLOW: Heavier traffic flow in one direction than the other. On a daily basis, most facilities have balanced flow. During the peak hours, flow is seldom balanced in an urban area.

VEHICLE MILES OF TRAVEL: A measure of the amount of usage of a section of highway, obtained by multiplying the average daily traffic by length of facility in miles.



City of Seal Beach



Open Space/Recreation/ Conservation Element

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Purpose/Background

The Seal Beach Open Space/Recreation/Conservation Element is an expression of the City's goals and policies within these three topical areas. While it is not necessary for a General Plan to include a Recreation Element, the close relationship between open space and recreation lends itself to addressing the City's goal of providing resources to the community that enhance opportunities to experience the natural amenities and qualities of the area. Because open space, recreation and conservation are all closely related, it has been determined that these topics should be considered under a single element. The purpose of this Element is to (1) define open space and classify various types of open space uses, (2) describe those parcels or areas that are currently being used for open space/recreation and conservation purposes and discuss in concept future open space needs of the community, and (3) determine methods to ensure that the present and future needs of the community are met.

For purposes of this Element, *open space land* shall be defined as any parcel or area of land or water that is essentially unimproved or contains only minor improvements and is devoted to an open space use. *Open space use* shall be defined as land which is set aside for (1) outdoor recreation, (2) the preservation of natural resources, (3) managed production of resources, or (4) the safety and general welfare of the community. Open space is valued as a way to buffer neighborhoods from urban intrusions and to preserve areas to maintain a small beach town character.

Recreation land can be categorized as land developed for the use and enjoyment of the community, either as active land (sports fields, tot lots, swimming facilities) or passive land (greenbelts, open space, public beach). Conservation land is land for the conservation, enhancement, and utilization of natural resources. The ocean attracts nature lovers and sports enthusiasts. This topic concerns itself with the management of natural resources to prevent waste, habitat loss, destruction, or neglect.



Statutory Requirements

California *Government Code* §65302 requires preparation of a general plan which "... shall consist of a statement of development policies and shall include a diagram or diagrams and text setting forth objectives, principles, standards and plan proposals."

Government Code §65302(e) requires that an open space element be included to ensure that open space plans are implemented by cities and counties to create a permanent network of open space. Section 65302(d) states, in part: "A conservation element for the conservation, development, and utilization of natural resources, including water and its hydraulic force, forests, soils, rivers and other waters, harbors, fisheries, wildlife, minerals and other natural resources" is required. The law also requires that "Every local open space plan shall contain an action program consisting of specific programs which the legislative body intends to pursue in implementing its open space plan." (Gov. Code §65564)



Related Plans and Programs

A number of programs, plans, and policies are created by state, county and local action to promote and protect the resources included in open space/recreation/conservation. Where regional policies combine with city plans and policies, a comprehensive network of open space and attendant amenities can be created. Where appropriate, relevant policies and goals are incorporated into the Element to provide for the continued maintenance and conservation of these resources.

Other General Plan Elements

Two other elements of this General Plan provide support and policy for open space and natural resource management. The Land Use Element defines various uses for land throughout the city, including open space designations. The Circulation Element includes existing and planned paths and trails for bicycle and pedestrian use.

Local Coastal Program

Because of its proximity to the Pacific Ocean, Seal Beach is subject to a state-mandated Local Coastal Program and California Coastal Commission jurisdiction. The 1976 California Coastal Act, which provides protection for the natural and scenic resources of the coastal area, requires the preparation of a local coastal program for jurisdictions with land within the coastal zone. The policies defined by the Local Coastal Program (LCP) set the standards that preserve and conserve the community's coastal influenced resources. The City of Seal Beach Local Coastal Program policies are included by reference as part of the General Plan. The LCP is to be updated every five years.

County of Orange General Plan

The policies of the Recreation and Resources Elements of the Orange County General Plan will not be in conflict with this General Plan for the purposes of providing and maintaining all resources related to open space/recreation/conservation. The City will cooperate with the County to maintain consistency in planning for regional parks and trails.



Quimby Act

Government Code §66477, also known as the Quimby Act, provides for the dedication of parkland or the payment of in lieu fees by developers as a requirement for residential development. This section states that "... the dedication of land, or the payment of fees, or both, shall not exceed the proportionate amount necessary to provide 3 acres of park area per 1,000 persons residing within a subdivision subject to this section, unless the amount of existing neighborhood and community park area, as calculated pursuant to this subdivision, exceeds that limit, in which case the legislative body may adopt the calculated amount as a higher standard not to exceed 5 acres per 1,000 persons residing within a subdivision to this section."

Seal Beach Park Dedication Ordinance

The City's Municipal Code has established a goal of five acres of parkland per 1,000 population.



Definitions

Open space for outdoor recreation is defined as land that is set aside for neighborhood, community or regional parks, beaches, special use parks or facilities, greenbelts, and open space corridors. These areas provide a pleasant environment for active and passive recreational activities. Definitions of the various types of recreation/open space opportunities include the following:

Community Parks

Community parks are larger than neighborhood parks and are designed to serve the needs of a broader age group. They serve the entire City and are easily accessible via arterial roads, attracting people from outside the area in which they are located. Typically, these facilities contain tennis, volleyball, handball and basketball courts, picnic areas, and sports fields for seasonal sports such as baseball and football. Community parks generally range in size from approximately 5 to 30 acres.

Neighborhood Parks

Neighborhood parks are designed to meet the needs of individual residential developments within the City. While providing for the recreational needs of several age groups, the neighborhood park is primarily designed to meet the needs of the 5- to 14-year-old group. Children's play equipment and tennis and basketball courts are among the facilities often found at neighborhood parks. Other improvements might include senior centers, youth centers, and aquatic facilities. These parks vary in size from a single lot to parcels of approximately five acres.

View Park

View parks are smaller passive parks designed to take advantage of a significant view. They are often located on coastal bluffs to focus upon ocean or bay views. Most view parks are between one-half and three acres in size and serve the entire City. View parks are generally improved with landscaping, walkways, and benches.



Regional Beaches and Parks

Regional beaches and parks are designated to meet the needs of residents and non-residents and usually attract a large number of people from outside the immediate area. Generally these facilities are over 30 acres in size and appeal to all age groups. Natural surroundings and spaciousness are emphasized to a greater degree than in community parks. Regional facilities are often used for day-long outings.

The shoreline of Seal Beach is considered to be of regional significance. Recreational activities are associated with the ocean, the beach, and the pier. Primary recreational activities include swimming, wading, surfing, pier and sport fishing, sunbathing, jogging, volleyball, and some non-organized games. Seal Beach contains approximately 2 miles of beachfront.

It was proposed in the Master Plan of Regional Parks for Orange County that the area known as the Los Alamitos Basin (Hellman Ranch) become a regional park. The Hellman Ranch Specific Plan provides for passive parkland and open space. The Table of Parks and Open Space in this section provides acreage totals.

Sunset Marina Park (formerly Sunset Aquatic Park) lies within the City limits of Seal Beach and is operated by the County of Orange. The Aquatic Park contains 276 boat slips, as well as dry boat storage facilities, and comprises 19.2 acres for passive recreation.

Special Use Parks or Facilities

Special use parks or facilities are park-like places where a unique recreational activity is provided. The service areas and size of these facilities vary according to their principal use. These facilities generally have a neighborhood or community orientation.

Playgrounds at school sites are considered to be special use facilities that provide areas for recreational activities. It is estimated that 50% of the area of school sites is used as playgrounds or athletic fields.



Existing special use parks or facilities:

- 1) Zoeter Park – Coastal District (1.9 acres)
- 2) McGaugh Elementary School – Marina Hill (4.7 acres)
- 3) Gum Grove Nature Park – Marina Hill/Hellman Ranch (14.9 acres)
- 4) North Seal Beach Community Center – Rossmoor Center (1.2 acres)
- 5) Greenbelt, including library, senior center, and Red Car Museum (6.4 acres)

Bikeways

Backbone bikeways are major throughway trails that connect to regional trails. They are primarily on major roads and serve the functional and recreational cyclist. Secondary bikeways connect to backbone trails and serve cyclists and children riding to and from school.

Pedestrian Trails

Pedestrian trails include improved or unimproved walkways or sidewalks located within park, beach, greenbelt, or open space areas.

Greenbelts and Open Space Corridors

Greenbelts are recognizable expanses of undeveloped land that provide an attractive open space setting and a buffer between adjacent land uses. Recreational activities in these areas are usually limited to activities such as walking, picnicking, and some organized games.

Channels and transmission rights-of-way offer a unique opportunity for joint use of facilities. Because of their configuration, these corridors provide an excellent opportunity to incorporate as a secondary use such things as bicycle paths, equestrian trails, and hiking areas. The City should seek the cooperation of other public agencies and private utility companies to expand the uses of existing or proposed corridors under the control of these agencies or companies.



Existing greenbelt:

- 1) The Pacific Electric right-of-way (6.5 acres)
- 2) San Gabriel River Bicycle Trail (2.0 acres)
- 3) Schooner Park (0.8 acres)
- 4) Aster Park (0.6 acres)

Public/Private Recreational Facilities

Public/private recreational facilities may not be open to the general public but do provide open space and a service to the community that might otherwise not be provided. These facilities may be located within a residential development and be owned and maintained by the residents of the community, or they could consist of individually owned and operated commercial enterprises. Existing private recreational facilities include:

- 1) Leisure World Golf Course
- 2) Leisure World Club Houses
- 3) Old Ranch Country Club and Golf Course
- 4) Old Ranch Tennis Club (dedication to City pending)

Natural Resource Land

Areas within the City have been designated for the preservation of natural resources. Natural resource areas would include land set aside for the preservation of plant and animal life, areas required for ecological and other scientific study purposes, bays and estuaries and coastal beaches. Seal Beach National Wildlife Refuge habitats are typical of this category. A 100-acre portion of the Hellman Ranch Specific Plan area has been deed restricted for 25 years for sale at fair market value to a public agency for the purposes of wetlands restoration, open space, and environmental education purposes. The adjacent oil production property (approximately 50 acres) has been similarly restricted, although the 25-year period does not commence until cessation of the oil production activities.

Land for the Production of Resources

Certain parcels of land within the City are being used for agricultural production, principally within the Seal Beach Naval Weapons Station. This category also includes oil extraction facilities



Open Space/Recreation/Conservation Element

that are located within Planning Areas 2 and 5. These uses are discussed by planning area.

Parks/Open Space

Planning Area	Name	Acreage	Use Designation
PA 1	Eisenhower	1.4	NP
	Marina Center and Park	2.6	NP-RF/CC
	Zoeter Field	1.9	SU
	Schooner	0.8	G
	Windsurf	0.4	RB
	Pacific Electric	6.5	SU-G
	Sunset Marina	19.2*	RB
PA 2	Gum Grove Nature Park	14.9	SU
	McGaugh Gym, Pool/Park	4.7	SU
	Heron Pointe Park	0.2	NP
PA 3	Leisure World Golf Course/Rec Center	n/a	PF
PA 4	Edison Park and Gardens	25.9	CP
	Aster Park	0.6	G
	Arbor Park	7.7**	NP
	Bluebell Park	1.2	NP
	Heather Park	1.6	NP
	Almond Park	1.5	NP
	N. Seal Beach Community Center	1.2	RF/CC
	Old Ranch Country Club	146.4*	PF
	Old Ranch Neighborhood Park	2.2	NP
PA 5	Seal Beach National Wildlife Refuge	920*	OS
Misc.	San Gabriel River Greenbelt	2.0	G
Beaches		80.3*	RB
Total		77.3	

CP = Community Park

NP = Neighborhood Park

RB = Regional Beach/Park

SU = Special Use

G = Greenbelt

RF/CC = Recreational facility/community center

OS = Open Space

PF = Private facility

* acreage not included in total

** located in Los Alamitos; leased and operated by Seal Beach



The Quimby Act, enacted in 1965, requires the dedication of parkland or payment of in-lieu fees for new development. The acreage to be dedicated is based on 5 acres per 1,000 population as specified by the City's Municipal Code. The City of Seal Beach has not met the necessary acreage requirements because a significant portion of the City had been developed prior to the time the Act was passed. However, the City benefits from non-Quimby Act recreational amenities within its boundaries, including 80.3 acres of beaches, the 19.2-acre Sunset Marina Park, which is operated by the County, and the National Wildlife Refuge within the Seal Beach Naval Weapons Station, each of which provides unique regional recreational opportunities. It is anticipated that completion of the Hellman Ranch project will provide an additional opportunity to meet these goals through the expansion of Gum Grove Nature Park and restoration of the wetlands areas. In addition, the DWP Specific Plan will provide opportunities for open space and passive recreation along the San Gabriel River.



Issues

Open Space for Public Safety

One earthquake fault is known to exist within Seal Beach. This fault is referred to as the Newport-Inglewood Fault. The fault zone is located to the north of Marina Hill and parallels the coast. Marina Hill resulted from uplifting action of the fault.

The most recent movement of this fault, which caused damage in the Seal Beach area, occurred in 1952. The 1933 Long Beach Earthquake was also attributed to movement along this fault.

Prior to any development adjacent to the fault zone, careful study should be undertaken to ensure the safety of such development. The question of the safety of construction adjacent to this fault is addressed in the Safety Element. Certain property in the fault zone may be retained as open space in the public interest. The Hellman Ranch wetlands restoration area and the Seal Beach Naval Weapons Station are traversed by this identified fault.

Funding

In consideration of the preservation of open space as outlined in this Element, it is imperative that all sources of possible funding be explored. Federal and state assistance should be sought for projects under the revenue sharing program. In addition, other possible methods of financing would include allocations from the City's general fund, general obligation bonds, assessment districts, environmental reserve tax funds, park and recreation funds for subdivision and non-subdivision developments and, in restricted areas, redevelopment agency funds.



Goals, Objectives and Policies

Because undeveloped land is becoming scarce in the City, land for open space uses should be secured at the earliest possible time. As additional funds become available, these areas could be developed in accordance with this plan. It is important that land be dedicated for park space or fees be paid in lieu of dedication of land as residential development continues within the community. Land dedicated for park purposes should be strategically located within any proposed development to be of greatest benefit to the future residents and to the community as a whole.

The City has established a standard of five acres of local parks for each 1,000 residents. While this standard has not always been achieved, and considering the importance of open space and recreation as contributing factors to the community's welfare, the City will strive to attain this standard in areas that may be developed in the future.

Several concepts related to parks and open space are presented in the Land Use Element, which should be implemented if they are determined to be feasible.

In an attempt to preserve open space lands, the following recommendations are made:

- 1) The City should explore all sources of possible federal, state, and county funding for open space lands, and the conversion of surplus public lands to open space.
- 2) The City should make every attempt to secure joint use of open space corridors and lands set aside for seasonal use by other public agencies and private utility companies.
- 3) Zoning should be investigated as an alternative to preservation of open space lands. An open space zoning ordinance, which is consistent with this plan, has been adopted.



Planning Areas

The City has been divided into five Planning Areas for purposes of consistency and ease of reference within each of the General Plan Elements. Recreation and open space uses are discussed below by planning area as they relate to existing conditions and any future plans and goals. Exhibit OS-1 provides a map of existing parks, open space, and recreational areas.

Planning Area 1 – Old Town/Surfside

Existing Parks

- Eisenhower Park (1.4 acres)
- Marina Center and Park (2.6 acres)
- Zoeter Field (1.9 acres)
- Schooner Park (greenbelt) (0.8 acres)
- Windsurf Park (0.4 acres)
- Pacific Electric Park (includes special use centers of Mary Wilson Library and Senior Center and Pacific Electric Railway Red Car Museum) (6.5 acres)
- Sunset Marina Park (19.2 acres) (28.0 total including waterways)
- Public beaches (Seal Beach/Surfside Beach) (52 acres total)

This Planning Area contains the beach frontage, which is a resource of local and regional attraction for recreation. The City's two miles of coastal beaches are primarily wide, sandy beaches with minimal vegetation coverage.

Planning Area 2 – Hellman Ranch/Marina Hill/Boeing

Existing Parks

- Gum Grove Park Nature Park (14.9 acres)
- McGaugh Gym, Pool/Park (4.7 acres)
- Heron Pointe Park (0.2 acres)

Gum Grove Park contains a dense grove of over 800 eucalyptus trees. This park, which will be extended to Seal Beach Boulevard as part of the Hellman Ranch project, will be dedicated to the City for the enjoyment of the residents of the community.



The Hellman Ranch Specific Plan provides for potential additional recreation/open space areas that may be developed as part of the total planned community. These areas/uses include:

- Los Alamitos Retarding Basin – 34.7 acres retarding basin/open space
- Hellman Ranch Lowlands – 100 acres on Hellman Ranch for future restoration, open space, and environmental education purposes.
- Oil Production Acreage – approximately 50 acres on the Hellman Ranch that is currently used for oil production operations for future restoration, open space, and environmental education purposes upon the cessation of all mineral production activities.

A pedestrian trail is planned to link to the Class I San Gabriel River Trail through the Los Angeles Department of Water and Power property adjacent to the west boundary of the Specific Plan site.

Planning Area 3 – Leisure World

This Planning Area is restricted to use by the senior residents of that community. In addition to passive park areas within Leisure World, the Leisure World Golf Course and Clubhouse are available to residents and guests.

Planning Area 4 – College Park

Existing Parks

- Edison Park and Gardens (25.9 acres)
- Aster Park (greenbelt) (0.6 acres)
- Arbor Park (7.7 acres)
- Bluebell Park (1.2 acres)
- Heather Park (1.6 acres)
- Almond Park (1.5 acres)
- Old Ranch Neighborhood Park (2.2 acres)
- North Seal Beach Community Center (1.2 acres)

Public Facilities

- Old Ranch Country Club driving range

Private Facilities

- Old Ranch Country Club golf course (158 acres)



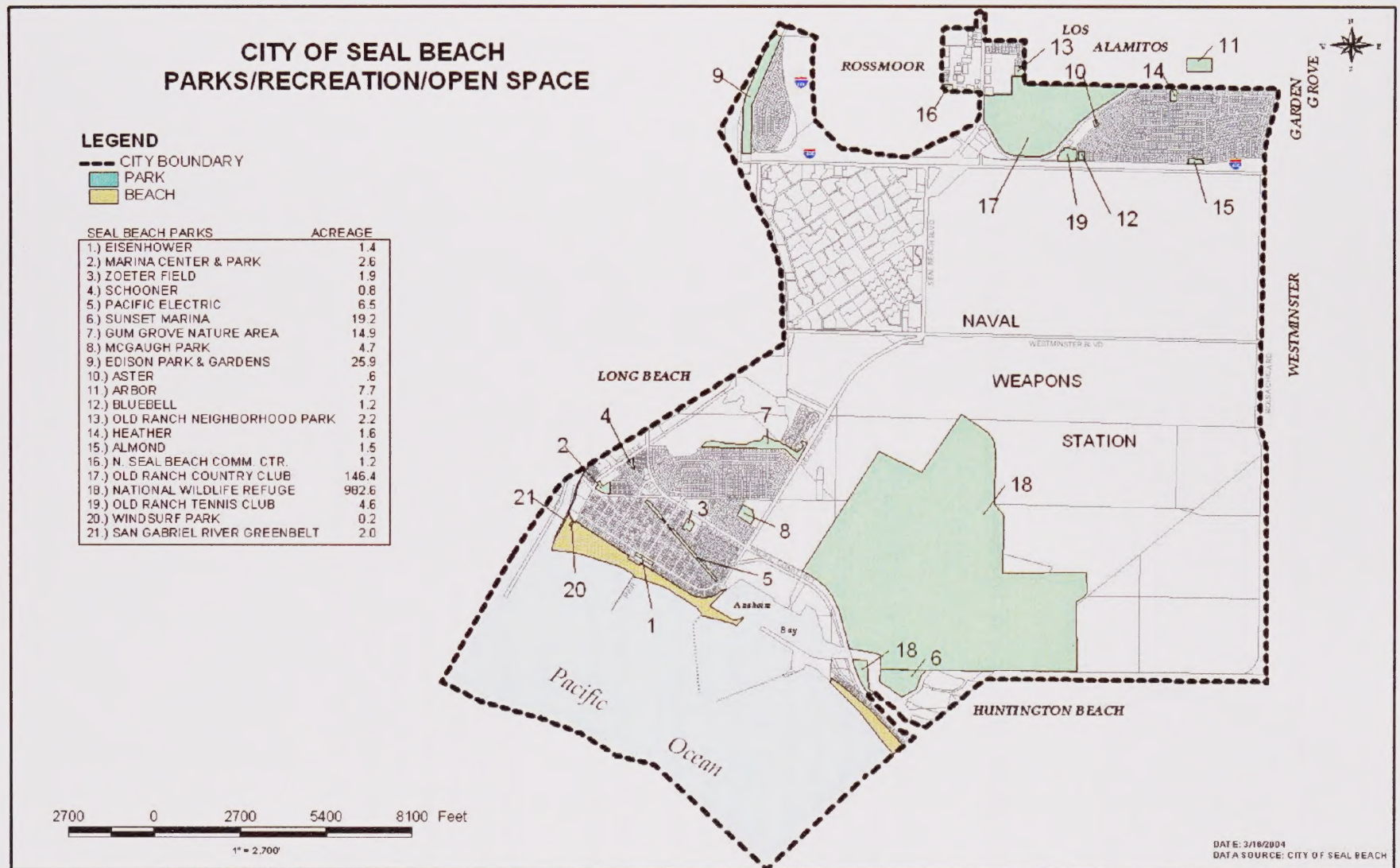


Figure OS-1 - Existing Parks, Recreation, and Open Space Areas



The North Seal Beach Community Center, a community special use facility that offers special programs for senior citizens, is also located in Planning Area 4. In addition, the City has the ability to accept the property dedication of Old Ranch Tennis Club prior to September 24, 2004. The dedication of the Old Ranch Tennis Club facility, approximately 6.74 acres, would be for an additional public recreational facility for the community. The City plans to accept the Old Ranch Tennis Club before the September 24, 2004, due date and will implement the re-use plan being finalized.

Planning Area 5 - Seal Beach U. S. Naval Weapons Station/Wildlife Refuge

This entire Planning Area consists of the U.S. Naval Weapons Station. The Seal Beach National Wildlife Refuge is located at the base of Anaheim Bay and within the Naval Weapons Station property. The refuge contains approximately 920 acres and provides a home for a number of species of fish and fowl, including several endangered species of birds. The marshlands serve as a nesting place for birds on their migrations and a spawning area for fish. The refuge contains large quantities of open space and provides variety within the predominantly urban setting.

Exhibit OS-2 provides a map of the Naval Weapons Station showing the portion that is designated as the National Wildlife Refuge.

Currently, commercial agricultural activities are restricted to the Seal Beach Naval Weapons Station. Approximately 2,000 acres of the base are currently used for the production of staple vegetable crops, such as carrots, beets, and corn. It appears that agricultural production will continue on the base for an indefinite period of time, since it has been determined that agriculture production is a compatible secondary use for a portion of the base.



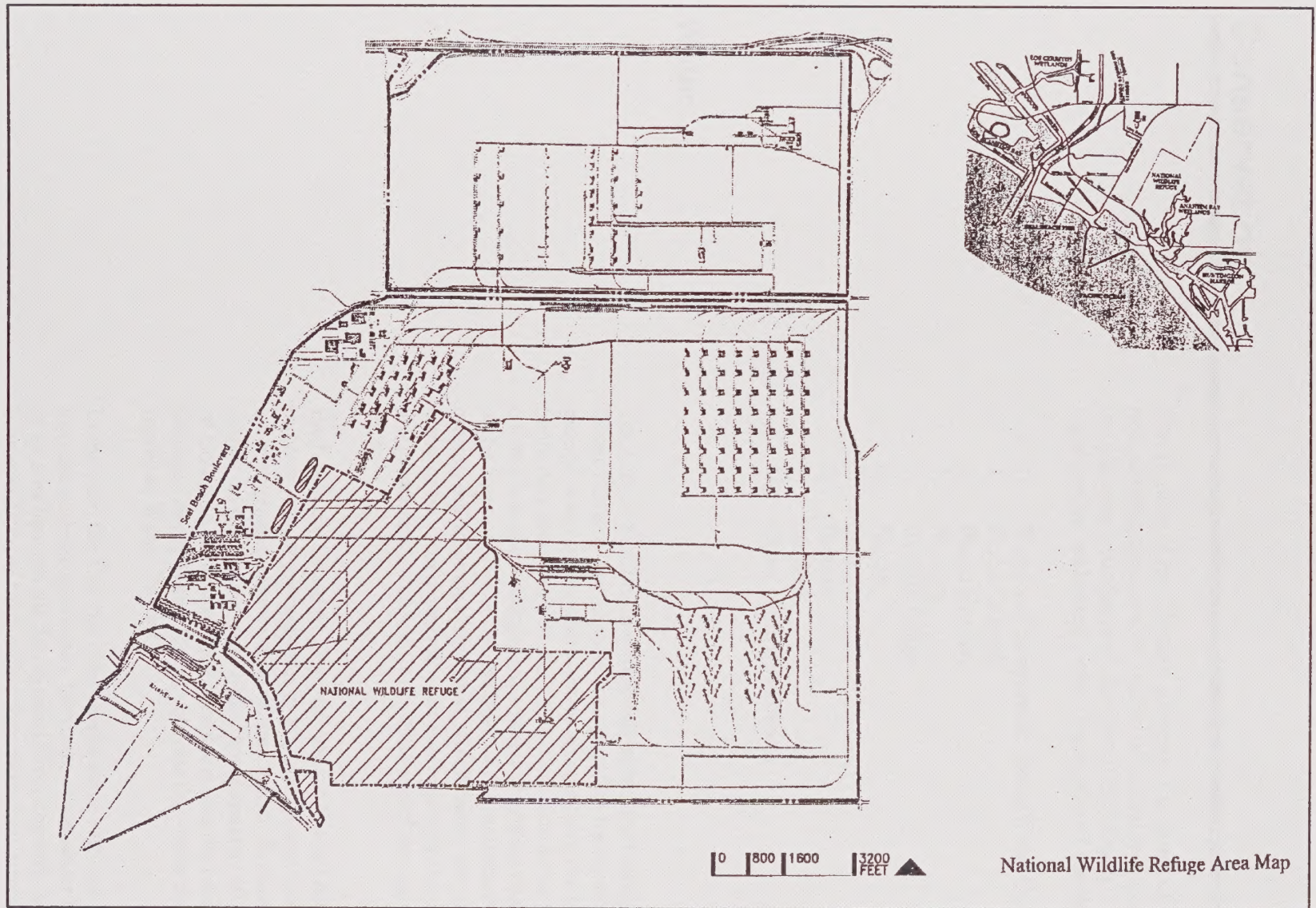


Figure OS-2 - National Wildlife Refuge Area Map



Conservation

This portion of the Element addresses the issues of conservation, development, and utilization of natural resources within the planning boundaries of the City of Seal Beach. The following topics are addressed within this section of the element:

- 1) Water and its hydraulic force/Water Quality
- 2) Flood Control
- 3) Beach Erosion
- 4) Harbors
- 5) Wildlife Refuge
- 6) Rivers
- 7) Soils
- 8) Forests
- 9) Minerals
- 10) Other Natural Resources

Water

The City of Seal Beach is included within the Orange County Water District. The District is responsible for replenishing the ground water basin, which serves an area from the base of the Santa Ana Mountains to the ocean. Colorado River water is percolated into the underground aquifers at settling basins located at the higher elevations at the base of the mountains. Pressure is created due to grade differential, which causes the underground water to be carried generally in a southwesterly direction. The groundwater is extracted from wells located throughout the District.

Each year the Board of Directors for the Water District determines a ratio of groundwater to imported water that will best serve the management needs of the District. Because of demands on the groundwater basin, approximately 60,000 acre feet of Colorado River water are percolated into the basin annually. Orange County Water District obtains this water through Metropolitan Water District.

In the past, the City has experienced some salt-water intrusion into the underground basin. Intrusion of salt water has occurred in an area beneath the San Gabriel River channel. As a result, barrier wells have been drilled that inject fresh water into those areas, which are referred to as "gaps." The boost in water pressure created by the injection wells prevents salt-water intrusion



from recurring. The barrier wells in the greater Seal Beach area are located on the west side of the San Gabriel River, along Westminster Avenue and on the Boeing Integrated Defense Systems property within the City of Seal Beach, and are operated by the Los Angeles County Flood Control District. This conservation measure to protect the underground basin will continue indefinitely.

Seal Beach operates three domestic fresh water wells and periodically imports additional water through the Metropolitan Water District. The domestic wells supply water to all districts on a routine basis. Approximately 25% of Seal Beach's water is purchased from the Metropolitan Water District in order to guarantee availability of emergency supplies when the well water supply is short due to maintenance or breakdown. The City purchased the Surfside Colony water system from the City of Huntington Beach and has incorporated it into the citywide system.

The City currently has two reservoirs with a total storage capacity of 7 million gallons. A 4-million-gallon reservoir is located on Beverly Manor Road adjoining the San Diego freeway, and a 3-million-gallon reservoir is situated on the Naval Weapons Station adjacent to Marina Hill. On an average, 3.6 million gallons of water is issued each day within the community. Daily consumption varies between summer and winter usage. Even with the limited growth available to the City at this point, the City should give serious consideration to constructing a third reservoir. With the expanded storage capacity, the City would reduce the risk of a water shortage in an emergency situation.

Water Quality

Within the city limits of Seal Beach is the mouth of the San Gabriel River which drains an area of approximately 700 square miles within Los Angeles and Orange Counties, the Pacific oceanfront, and various wetland areas that are subject to various sources of pollution within the community. To protect public safety, as well as these natural resources, the water quality should be monitored and protected.

Goals and objectives include:

- Coordinate water quality, supply, and conservation programs with the responsible water agencies.
- Encourage the production and use of recycled water.
- Conserve and protect watershed areas.



Pollutants contained in stormwater runoff are referred to as “non-point” source pollution due to the diffuse origins of such pollutants, including metals, organic wastes, pesticides, and a variety of other pollutants. Other types of pollutants include those that result from disinfection of drinking water and the intrusion of salt water from the ocean into nearby groundwater aquifers. It is these “non-point” source pollutants that are addressed by the Open Space/Recreation/ Conservation Element in order to protect the receiving waters.

- The goal is to protect and enhance the quality of water in local rivers and wetlands from “non-point” source pollutants in order to maintain and enhance the quality of life valued by residents and visitors to the City. In order to accomplish this goal, the following should be encouraged as part of an ongoing effort to protect and maintain water quality:
 - Coordinate with other agencies in the watershed area to develop a public education program that will inform the public of the importance of water quality and actions that they can take to improve water quality.
 - Coordinate with existing public outreach programs and create additional programs to involve the community in addressing urban runoff pollution problems and raising awareness of how individuals’ activities contribute to runoff pollution, with resulting loss of marine biodiversity and beach closures.
 - Develop measures to promote proper disposal of pollutants to the sanitary sewer or hazardous waste facilities rather than to the storm drain system.
 - Encourage contractors to comply with accepted stormwater pollution prevention planning practices for all projects subject to erosion potential.
 - Establish requirements for installation and maintenance of stormwater structural controls to reduce peak discharges and to maximize pollutant removal from runoff.
 - Establish and coordinate good housekeeping procedures for all City departments to ensure that water quality objectives are not threatened by in-house operations, creating an example for the community.

The Federal Clean Water Act requires National Pollution Discharge Elimination System (NPDES) permits for stormwater discharges from municipal storm sewer systems to waters of the



United States. Each permit renewal requires the permittees to continue to implement ongoing stormwater quality management programs and develop additional programs in order to control pollutants in stormwater discharges.

Because water resources – both for domestic use and ocean-related use – are important to the City, efforts are needed to ensure availability and quality. The ocean waters have a significant natural, recreational, and economic importance to the City and the region. Control of pollution is imperative to the future quality of the area's living environment. Water conservation and quality should be encouraged by:

- Expanding the production of reclaimed water and developing new uses for reclaimed water;
- Requiring the use of drought resistant plant species with mulching and composting in landscaping for private and public areas, including parks;
- Establishing water conservation education programs;
- Requiring the incorporation of water conservation devices in new development, public projects and rehabilitation projects;
- Reducing urban pollutant runoff through National Pollution Discharge Elimination System (NPDES) programs; and
- Developing a Water Quality Management Plan (WQMP) for the City.

The City will cooperate with all federal, state, and local regulatory agencies to monitor water quality and provide infrastructure improvements as needed to achieve these goals.

Flood Control

Flood control measures have been implemented throughout the community. Major drainage channels within the City drain into the San Gabriel River, Anaheim Bay, and Huntington Harbor. The Orange County Flood Control District and the City are responsible for the flood control improvements within the community.

There are two flood control-retarding basins within the City. A 38-acre basin is located south of Westminster Avenue and west of Boeing's Seal Beach facility. This basin may be suitable for dual usage. These uses would consist of a floodwater retarding basin during the winter and a regional park during the drier por-



tions of the year. The Old Ranch Country Club golf course is used as a retarding basin for storm water run-off from College Park East and the Los Alamitos Naval Air Station during heavy rains.

In the future, the City should consider increasing the capacity of the northwest area storm drain system through a capital improvement project.

At the County level, the Orange County Flood Control District has developed a number of conservation techniques. These measures include the use of importing aqueducts, additional reservoirs, importing of spreading works and maintenance of open bottom designated channels.

Beach Erosion

Historically, the stability of the shoreline was dependent upon the delicate natural balance between the erosive forces of the wind, the surf, and the tide and the replenishment of beach-building materials brought down the Los Angeles and San Gabriel Rivers. Replenishment sands from rivers have been traditionally transported southeastward by the littoral (shoreline) currents. When the federal offshore breakwater, the First Street jetty, and the breakwaters at Anaheim Bay were constructed, the littoral currents in the general area were partially blocked and altered.

The Seal Beach shoreline erosion problem consists of three areas:

- 1) The west beach is the area between the San Gabriel River and the pier.
- 2) The east beach extends from the pier to the west jetty of Anaheim Bay.
- 3) Anaheim Bay and Surfside beaches are considered together and extend from Anaheim Bay to Anderson Street.

The jetties and the federal breakwater were built in the 1940s. The construction of these public improvements changed the littoral currents, affecting the east and west beaches. Instead of transporting material in a southeasterly direction, the shoreline currents were reversed and flowed in a northwesterly direction. In 1958-59 a groin was constructed at the base of the pier to restrict the erosion problem. The groin did not eliminate the ero-



sion problem, and it has been estimated that 20,000 cubic yards of sand are lost each year from the east beach. This sand is carried away through the Navy harbor and west breakwater and around the end of the groin to the west beach. In addition, the San Gabriel River adds sand to the west beach. Because of the changes in the shoreline currents, this sand collects as a delta at the mouth of the river.

Because the littoral currents have been altered, the problem of beach erosion will continue indefinitely. While the Corps of Engineers replenishes sand at Surfside, the City must assume full responsibility for redistribution of sand from the west to the east beach. The City should continue to seek assistance from state and federal agencies in order that the City might be relieved of a portion of the burden and expense of maintaining this facility of regional significance.

Artificial means must be used in order to replenish sand to the east beach. Since 1970, an average of 100,000 cubic yards of sand have been redistributed on a five-year cycle from the west beach to the east beach. However, history has shown that a five-year project of sand replacement may not be adequate due to the multiple offshore storms that can occur during that timeframe. The City has a continuing redistribution program during the winter months to provide protection from flooding due to high tides.

Due to changes in littoral currents, the beach at Surfside erodes at a rate of about 70 lineal feet per year. In 2001, the U. S. Army Corps of Engineers replenished the Surfside and Sunset Beach beaches with 2.2 million cubic yards of sand pumped from Anaheim Bay. This project was designed to fulfill the replenishment needs of these beaches until 2006.

Harbors

Anaheim Bay is located in the Seal Beach Naval Weapons Station between the Coastal District and Surfside Colony. The Bay was first used as a commercial harbor in the 1860s. Cargo was shipped inland to the Santa Ana valley. Anaheim Bay served the interior of Orange County for 15 years. In the mid-1870s rail lines were extended into Orange County, and the commercial activity at the Bay declined.

In the 1920s, the strand at Anaheim Bay took on a residential character. In the early 1940s the federal government purchased



Anaheim Bay and the adjacent land and developed the Seal Beach Naval Weapons Station. The configuration of the bay was modified to accommodate the Navy's needs, and in 1944 two jetties were constructed into the ocean to form a harbor entrance. A 1000'-long wharf was constructed to service naval vessels.

The Weapons Station handles approximately 80 military ships per year, down from a high of approximately 600 ships per year. Anaheim Bay also provides a channel entrance to Sunset Marina Park and Huntington Harbor. Currently, there are approximately 276 boat slips in Sunset Marina Harbor. It is anticipated that harbor expansion will be limited because of the possible adverse effects on the National Wildlife Refuge located on the Weapons Station. In addition to limiting the number of boat slips, the configuration of the park facility was altered to lessen its impact on the marshlands to the west.

Anaheim Bay links the salt marshlands with the ocean. The Bay provides access to the marshlands for fish and because of tidal fluctuations, circulates water throughout the marsh.

Wildlife Refuge

In 1972, the United States Congress established the Seal Beach National Wildlife Refuge on the Seal Beach Naval Weapons Station. The refuge contains 920 acres of marshland and 560 acres outside the slough area, which were restored to their natural condition. The Wildlife Refuge has an international designation under the Ramsar Convention as a "Wetlands of International Importance," as well as an "International Important Birding Area" under the International Migratory Bird Treaty, and is a Federal Marine Protected Area.

More than 200 species of birds are found within the boundaries of the refuge during the course of a year. The marshland is primarily used as a roosting area for birds. During peak migration in December over 10,000 birds use the marshlands. Five species of birds that are currently on the state and/or federal lists of endangered species habituate the marshlands. These endangered species are the light-footed clapper rail, the California brown pelican, the peregrine falcon, the California least tern, and Belding's savannah sparrow.

In addition to the birds, 61 species of fish have been identified in Anaheim Bay, the tidal channels of the marshlands. These



species spend at least a portion of their life cycle in the marsh estuarine system.

The Naval Weapons Station has developed a wildlife management program that includes the development and implementation of a wildlife management and conservation plan. The plan relies on available Navy and non-Navy resources, as well as close coordination with resource agencies and the public. This will allow seamless management across jurisdictions for the benefit of healthy and sustainable land use, habitat conservation and improvement, and the protection of populations of endangered, threatened and “management focus” species, consistent with long-term sustainability of the Base’s military mission. This will be accomplished by employing an ecosystem management approach that considers the station’s natural and cultural resources, surrounding community issues, current and emerging technology, and military readiness. Specific goals and objectives will be established based upon this ecosystem management approach that will also consider how the Weapons Station’s natural resources fit into the larger area of regional ecosystem management. These goals and objectives are being developed and improved upon by working groups comprised of a broad range of regulatory agencies, technical professionals, and local community representation.

Rivers

The San Gabriel River is located on the western boundary of the City. The river, which originates in Los Angeles County, empties into the ocean at Seal Beach. The river transports sands that aid in the replenishment of beach sands. Sand transport has been severely reduced due to upstream damming for water conservation and flood protection purposes. In addition, the river provides an outlet for flood control basins and channels within the City.

The river is also a major source of ocean contamination immediately after storm events due to the washing of upstream pollutants and trash into the ocean. The City is responsible for removal of this debris when it eventually washes on shore. The City plans to take an active role in reducing the amount of debris reaching the City beaches by joining and working with the San Gabriel River and Mountains Conservancy.



Soils

Within the City of Seal Beach, soils are generally considered good for agricultural purposes. Prior to the rapid urban development in western Orange County, much of the land was used for growing crops.

Today, the greatest majority of the land is developed with the exception of the Seal Beach Naval Weapons Station. The Navy leases 2,000 acres of land for truck farming. The soils on the Station are fertile and subject to few limitations with a low risk of damage when cultivated. As long as farming does not interfere with the primary mission of the Weapons Station, crops will continue to be grown as a secondary use of the land.

Forests

The Gum Grove Nature Park is an urban forest in west Orange County. Its first human inhabitants were the Tongva Indians, who used this area as a viewpoint over the surrounding wetlands. In the early 1900s, Hellman Ranch employees planted blue and red gum eucalyptus trees that were used for cooking and heating. Since then, the second and third growth forest of approximately 500 trees has become a natural resource area that is now used for passive recreation. The Gum Grove Nature Park will be dedicated to the City as part of the development outlined in the Hellman Ranch Specific Plan.

The Gum Grove Nature Park houses a variety of wildlife such as skunks, opossums, ground squirrels, toads, salamanders, tree frogs, and coyotes native to this area. In the fall and winter months, Monarch butterflies cover a cluster of trees during their migratory stopovers. This ecosystem, including seasonal ponds, supports great blue herons, snowy egrets, great egrets, and at least two birds of prey (the American kestrel and the red tailed hawk). Over 50 other bird species are known to be inhabitants or visitors in this area.

The Gum Grove Nature Park Group, formed by local citizens, is establishing a management and conservation program in cooperation with the California Department of Forestry and the City of Seal Beach. The vision for the entire Gum Grove Nature Park is a two-phase transformation from a neglected habitat to one that will support an increasing number of insect, bird, animal, and plant species that have long been native to this area. Phase One is to plant the five acres being added to the park with



native plant and tree species only. Phase Two, occurring over many years, will be native species replacement as disease continues to claim the non-native eucalyptus. These efforts and ongoing maintenance will include archaeological sensitivity and cultural remembrance of the original Tongva Indian residents.

The Gum Grove Nature Park is the central component of a wildlife corridor that connects eastward with the Seal Beach National Wildlife Refuge located on the Seal Beach Naval Weapons Station and westward with the Hellman Wetlands, which are designated for future restoration. The two-phase Gum Grove Plan, in conjunction with future Hellman Wetlands restoration, will provide a management and conservation program that will bring back to life a severely degraded corridor. Planting of native grasses, plants, and tree species will provide for the habitat and foraging needs of birds and animals that live and migrate through this region.

Minerals

One oil extraction site is maintained within the tidelands area of Seal Beach. This site is known as Esther Island. Oil extraction operations are also conducted along the Newport-Inglewood Fault on the Hellman Ranch property and on an oil lease site in the National Wildlife Refuge on the Seal Beach Weapons Station.

Currently, it appears that the oil fields within the City boundaries will continue in operation. If oil extraction activities are proposed under the City's jurisdiction, existing ordinances would regulate the operations to ensure compatibility with other types of surrounding land uses.

Cultural Resources

The Cultural Resources Element of the City's General Plan describes methods for protecting archaeological and historical resources. The element also includes local policies to guide implementation of cultural resource preservation beyond the protection afforded by applicable federal, state, and local laws. Future development within the City will be subject to these policies and laws to preserve known and unknown sites and properties of a cultural and historic nature.



Wetlands

A 100-acre portion of the Hellman Ranch Specific Plan area has been deed restricted for 25 years for sale at fair market value to a public agency for the purposes of wetlands restoration, open space, and environmental education purposes. The adjacent oil production property (approximately 50 acres) has been similarly restricted, although the 25-year deed-restricted time period does not commence until cessation of the oil production activities.

It is the intent and goal of the City to address future uses for these areas and cooperate with the property owner, state, local, and private agencies, as well as the community, to provide the means to accomplish this goal.



City of Seal Beach



Safety Element

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Introduction

Purpose and Background

The Seismic Safety - Safety Element was originally adopted on July 14, 1975. As the result of subsequent changes in the requirements regarding General Plan Elements, the City decided on August 11, 1997 to rename this Element (i.e., "Safety Element") and to expand its scope to cover storm drainage, shoreline protection, and the use, transport, and disposal of hazardous materials.

The Safety Element is organized into six topics and an implementation chapter. Following the introduction, Topics 1 through 6 discuss separate safety issues as they relate to the City of Seal Beach. Following the discussion in each topic are policies to deal with the identified issues. The Implementation section of the Element indicates which City Department has primary responsibility for implementing each policy, how it will be funded, and the scheduled timing for implementation.

The major topics discussed in the Safety Element are:

- Emergency Planning/Response
- Hazardous Materials
- Geologic Hazards
- Fire Hazards
- Flood Hazards
- Shoreline Protection
- Implementation

Statutory Requirements

In 1971, the California State Legislature required that all cities and counties adopt Seismic and Safety Elements as part of their General Plans. The basic objective of the Safety Element is to reduce loss of life, injury, damage to property, and economic and social dislocation resulting from future natural and man-made hazards. To achieve this objective, the Safety Element is utilized as the major tool for identifying hazards that should be considered before making land use decisions. Mapping is required of known seismic and other geologic hazards (such as landslide areas), and issues such as emergency evacuation routes and water supply for fire fighting must be addressed.



Government Code §65302(g) requires a Safety Element that is developed for the protection of the community from any unreasonable risks associated with the effects of seismically induced surface rupture, ground shaking, ground failure, tsunami, seiche, and dam failure; slope instability leading to mudslides and landslides, subsidence, liquefaction, and other seismic hazards; flooding and wildland and urban fires. A Safety Element shall also address evacuation routes, peak load water supply requirements, and minimum road widths and clearances required around structures, as those items relate to identified fire and geologic hazards.



Topic 1: Emergency Planning/Response

The potential for a major calamity increases with the continuing urbanization of previously unpopulated areas and with the advent of industrial processes that utilize hazardous materials. The impacts of earthquake, fire, and flood are magnified as more and more high-risk land is urbanized. Because of their unknown or unexpected nature, many emergencies require quick and decisive action. Because disasters are dynamic and we continually learn through experience, emergency response and planning should also be dynamic and continually maintained and updated. Several disasters in Seal Beach and in other communities in California have taught us a great deal about disaster response.

The City of Seal Beach adopted an Emergency Operations Plan in June 1996. This Plan details the City's specific responsibilities before, during, and after any emergency. This Plan is consistent with the State Emergency Services Plan, which describes the response of all levels of government and certain private sector organizations to natural, man-made, or war-caused emergencies that threaten life, property, and the resources of California. Section 8568 of the California Emergency Services Act provides a basis for the City's emergency management programs by requiring cities to carry out the provisions of the State Emergency Services Plan. The City's Plan is an extension of the state plan.

The City's plan describes how the City will respond in the event of, but not limited to, a state of war or act of terrorism emergency, natural emergency situations (earthquakes, fires, floods, storms and tsunamis), and man-made emergency situations (pollution spills, civil disturbances, aircraft accidents, industrial accidents, explosions and radiological incidents). Emergencies that are preceded by a recognized buildup period allow for advance warning to those impacted areas and population groups. Timely warning and information broadcasts are important to citizens' ability to help themselves, and for their evacuation. Emergencies generally occur without advance warning, and therefore require prompt mobilization and commitment of the emergency organization after the onset of the emergency.

During or following local emergencies, the City is the first agency involved. If the emergency is so large that the City's resources are inadequate or exhausted, assistance will be requested of, and provided by, nearby jurisdictions through mutual aid agreements. Neighborhood groups can assist to the City by conducting first aid and search and rescue operations in times of



large disasters. When mutual aid systems are not sufficient for the disaster task, the County requests assistance from the state. The Governor's Office of Emergency Services (OES) coordinates regional emergency response and disaster assistance. The state may also request aid from the federal government in the form of a Presidential Disaster Declaration. The Federal Emergency Management Agency (FEMA) then provides disaster assistance, temporary housing assistance, and recovery funds after a Presidential Disaster Declaration.

The City's Emergency Services Plan lists three temporary seats of government in the event City Hall is not available. These locations are the Seal Beach Police Department, the Seal Beach Public Works Department, and Fire Station #48 on Beverly Manor Road. Due to the close proximity of all of these alternate locations, none of these facilities are likely to be available in a major catastrophe such as an earthquake. The locations of alternate seats of government and emergency facilities have not been evaluated as to their effectiveness in terms of location and response capabilities.

Mobility of the community to accomplish evacuation and the deployment of emergency personnel during any disaster is essential. A variety of emergency response challenges exist within the City of Seal Beach. The City is located in an area subject to strong earthquake impacts and flooding impacts. In addition, the Los Alamitos Joint Forces Training Base is located to the north of the City boundary, and flight operations from the Training Base generally take off over the City of Seal Beach, resulting in a potential for aircraft emergency responses, particularly in the case of an aircraft accident (refer to Figure S-1). The large majority of flight operations at the Training Base are helicopter operations, which do not result in a major exposure to the general public in the event of an accident.



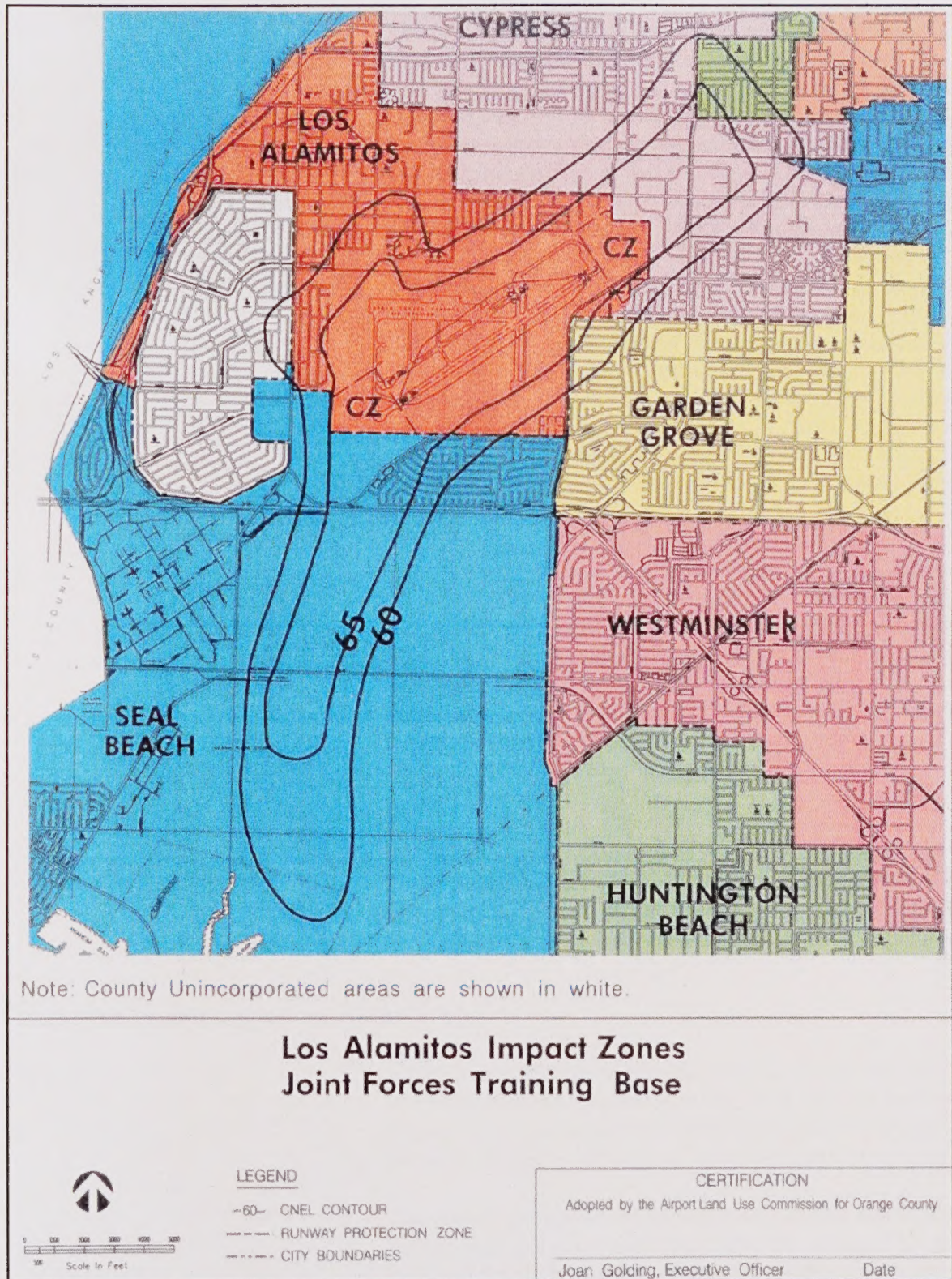


Figure S-1 - Los Alamitos Impact Zones, Joint Forces Training Base



Structures within the City should not exceed the elevations defined in the Federal Aviation Regulations (FAR), Part 77 – “Objects Affecting Navigable Air Space,” as applicable to the Los Alamitos Joint Forces Training Base. These regulations are the guidelines that describe the ultimate heights of structures under the “imaginary surfaces” and would be used for determining if a proposed structure is an “obstruction” (refer to Figure S-2-AELUP Height Restriction Zone for JFTB).

All developments within the City will be subject to the FAR Part 77 Notice Requirements. The sponsor of any project that requires the filing of notification with the Federal Aviation Administration shall provide copies of the completed FAA form 7460-1 or 7480-1 to the Director of Development Services and to the Executive Director of the Airport Land Use Commission. The City will incorporate the findings of the Airport Land Use Commission and the FAA into its decision-making process as it pertains to individual projects.

It is the City’s responsibility to develop evacuation plans that readily and effectively remove residents from hazardous areas to locations of greater safety. The mandate of the City to protect public health, safety, and welfare requires the City to ensure that disaster planning within each neighborhood meets both the City’s and neighborhood’s interpretation of acceptable risk. In issues of overriding safety concerns, the City’s mandate requires affirmative action to maximize public safety.

A discussion of emergency response and evacuation must focus on three levels of preparedness: the household, the neighborhood, and the community at large. Specific policy decisions and public actions must be taken at each of these levels to assure an acceptable level of risk for the City’s residents.

Household Emergency Planning

Household emergency planning refers to actions that are taken by private citizens to increase their own level of disaster preparedness. Emergency response at this level generally requires the dispatch of specific vehicles to serve specialized functions.

The highest probability of an evacuation occurs from individual households. Isolated occurrences arise due to structural fires or localized flooding, as experienced in the 1983 storms and again in January 1995. Evacuation at the household level generally does not require public agency assistance, except to deal with the cause of the evacuation and medical care. Problems associ-



ated with response to individual households are generally related to street closures due to some impact directly related to the disaster incident itself.

Families need to increase their general preparedness for the most likely natural disasters that could occur in their particular location. Many specific steps can be taken on the part of a homeowner to gain some autonomy and safety in the case of a natural disaster. Adequate supplies, training, and education about the effects of likely disasters and available support systems help in this regard. The City can support these individual household efforts with various services, such as the periodic distribution of emergency planning packets that provide up-to-date emergency planning information and response guidelines.

Neighborhood Emergency Planning

Neighborhood emergency planning requires the neighborhood and the community to determine an acceptable level of risk and the resulting public actions to elevate disaster preparedness to that level. Evacuation planning refers to the removal of people from areas of extreme hazards to areas of public safety.

As a result of historic development patterns and constraints imposed by local topography, the City is divided into geographic neighborhoods. These neighborhoods are an integral component of emergency response planning. Emergency planning should incorporate the resources of the individuals within these neighborhoods and recognize the constraints each neighborhood embodies.

A citizen response model could be incorporated into the City's Emergency Operations Plan that utilizes a neighborhood coordinate system of planning and response. This plan could also incorporate a communication component for information coordination and emergency resources allocation. It might be possible to designate individual neighborhood communication sites and establish emergency local radio broadcasts. Neighborhood planning could build upon the Neighborhood Watch program. This program has been a victim of funding priorities, but as a response to the requirement of the Emergency Plan to promote neighborhood autonomy, it could be re-invigorated and supported by City staff. For instance, a periodic newsletter could be established to help keep the neighborhoods informed of the most recent advances in emergency response and coordination.



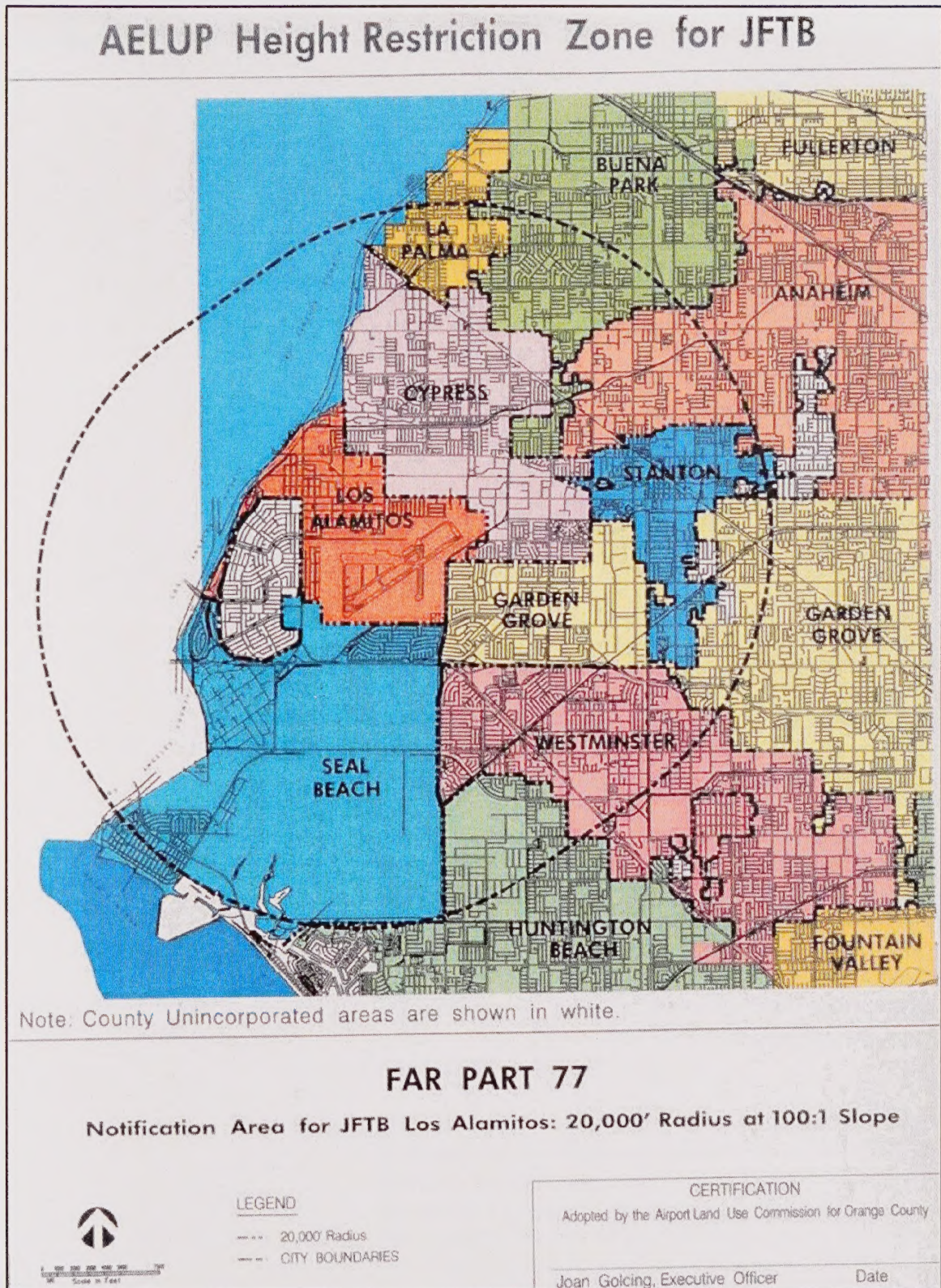


Figure S-2 - AELUP Height Restriction Zone for JFTB



Community Emergency Planning

Community level emergency planning includes the development of an emergency plan to be initiated in the event of a citywide evacuation. The Emergency Operations Plan anticipates this type of concern, and includes provisions for emergency housing, transportation, clothing, food, and medical aid. As neighborhood evacuation planning addresses evacuation routes from various neighborhoods, comprehensive citywide emergency planning includes the development of a supportive infrastructure responsive to the emergency needs of the community.

As part of a community-wide response to evacuation planning, the City's Emergency Operations Plan identifies the roles and relationships of all governmental, quasi-governmental, and private service agencies existing within the City and could be updated to inventory facilities within the community available for emergency response needs. This plan becomes operational in the event of a local emergency and should be periodically updated.

In the event of a community-wide disaster, more than one evacuation center could need to be established within the City. The scale of such a disaster would preclude individual evacuation attempts from the community in favor of the efficiency of mass evacuation. It is doubtful that any roadway could accommodate vehicular evacuation on a community-wide scale.

Citizens relocated to evacuation centers within the community would need to remain in those locations rather than add to the expected confusion on congested roadways. It is not anticipated that any new roadways serving the community would be needed for evacuation. In the case of a community-wide disaster, the City would need to have coordinated plans with local military organizations for the airlift of supplies and for evacuation of residents requiring medical care beyond the capability of the community's resources.

The City of Seal Beach is fortunate to have the Seal Beach Naval Weapons Station within its corporate boundaries. The Naval Weapons Station can provide personnel and equipment for emergency response activities, and can also serve as an evacuation center in the case of a major earthquake in the City. The Los Alamitos Joint Forces Training Base is located immediately adjacent to the College Park East neighborhood, and is designated as a regional disaster relief center by the State of California. During a major emergency response in southern California,



the Joint Forces Training Base would be activated for emergency medical purposes and for evacuation center purposes. The City's Emergency Operations Plan should be updated to reflect this needed coordination with the Naval Weapons Station and the Joint Forces Training Base.

An Emergency Operations Center (EOC) has been established at the Seal Beach Police Department to manage community-wide or neighborhood emergencies. City staff, along with other emergency response providers, would be utilized for staffing the EOC and have, at minimum, annual training events to adequately support its operation. A public information officer is designated in the Emergency Operations Plan, with procedures for obtaining and disseminating accurate information set forth in the Plan.

In the event of an emergency, whether a natural disaster or a situation involving homeland security, the EOC will coordinate response activities with the County of Orange via the Loma Ridge Emergency Operations Center located in the foothills just off the Eastern Transportation corridor (SR 241) near Irvine Lake. During non-emergency situations, the EOC will liaison with the Orange County sheriff's Emergency Management Group for disaster coordination and the Terrorism Early Warning Group for Homeland Security Coordination.

Another asset available to the City in the event of an emergency is the large number of ham radio operators who reside in Seal Beach. These ham operators are a part of a larger group of ham operators known as Radio Amateur Civil Emergency Services (RACES) who can be relied on for assistance during an emergency.

As with all emergency planning, there must be ongoing maintenance and training. This involves the allocation on the part of City government of the necessary funding support for an ongoing emergency management coordinator.



Access Issues

In Seal Beach, the College Park West community is accessed by only one entry point, which creates potentially undesirable access in the event of a disaster. The College Park East, Leisure World, and Surfside communities have only two access points, adjacent respectively to Lampson Avenue, Seal Beach Boulevard, and Pacific Coast Highway, which could result in access difficulties in a major earthquake or flooding situation (refer to Figure S-3 - Impaired Road Access Map).

In addition to these neighborhoods, many of the City's major roadways are susceptible to circulation restrictions and geologic or hydrologic hazards that could result in their closure during critical periods. The number of access routes to any neighborhood is less significant than their circulation capacities (e.g., parking, travel-way width) and their susceptibility to closure by hazards (e.g., bridge damage, flooding).

Some of the neighborhoods, such as College Park East, College Park West, and Leisure World, are not subject to major environmental constraints like an identified fault or floodway. Roadways that provide access to these neighborhoods cannot always remain open, because under even minor adverse conditions such as a downed tree or electrical line, these areas may become inaccessible.

The City could undertake a comprehensive emergency access evaluation and upgrade program in which each public and private road/trail is evaluated in terms of providing emergency vehicle access and identifying access problems. The goal of this evaluation and upgrade program would be to upgrade the access-deficient areas by retrofitting the substandard roads/routes in an appropriate manner, based on the results of this evaluation. In addition, an emergency circulation system could be designated for evacuation and response.

The emergency circulation road/route system could be maintained at high priority levels of policy and financial consideration. For instance, the public utility companies could be consulted and encouraged to prioritize the undergrounding of their utility lines along these routes. Tree maintenance could be emphasized on public right-of way and private property along these routes. City maintenance of these roads or emergency routes could receive funding priority.



As discussed above, the most severely access-restricted neighborhoods are College Park West, College Park East, Leisure World, and Surfside. These neighborhoods are single-access or dual-access neighborhoods and are subject to environmental constraints that could restrict access.

College Park West

College Park West is recognized as an area subject to multiple hazards. The major hazard that could minimize access is bridge collapse due to an earthquake. The neighborhood's isolation, proximity to open space areas, topographic conditions, and wind patterns make it susceptible to a wildfire during a Santa Ana wind condition. As a result of these identified hazards, College Park Drive could become impassable. In that event, emergency vehicles would be unable to obtain ingress, and vehicular egress of the residents would not be possible.

The fire hazard potential exists in College Park West due to the threat of structural fire spread during a Santa Ana wind condition. This type of fire can trigger an evacuation response, particularly during a Santa Ana wind condition.

It is imperative to residents' safety that alternative routes of evacuation be established in the College Park West area. Any route located too close to the existing roadway could quickly succumb to the same hazard that forced closure of the existing roadway. The location of College Park West adjacent to the San Gabriel River and the I-405/I-605/Seventh Street interchange make the construction of an evacuation route in this area appear to be aesthetically and economically unsound.

The City needs to continue to investigate and implement an emergency access route that will meet the safety needs of this neighborhood and will be consistent with community economic and environmental goals. An emergency access connection should be investigated utilizing the San Gabriel River levees.



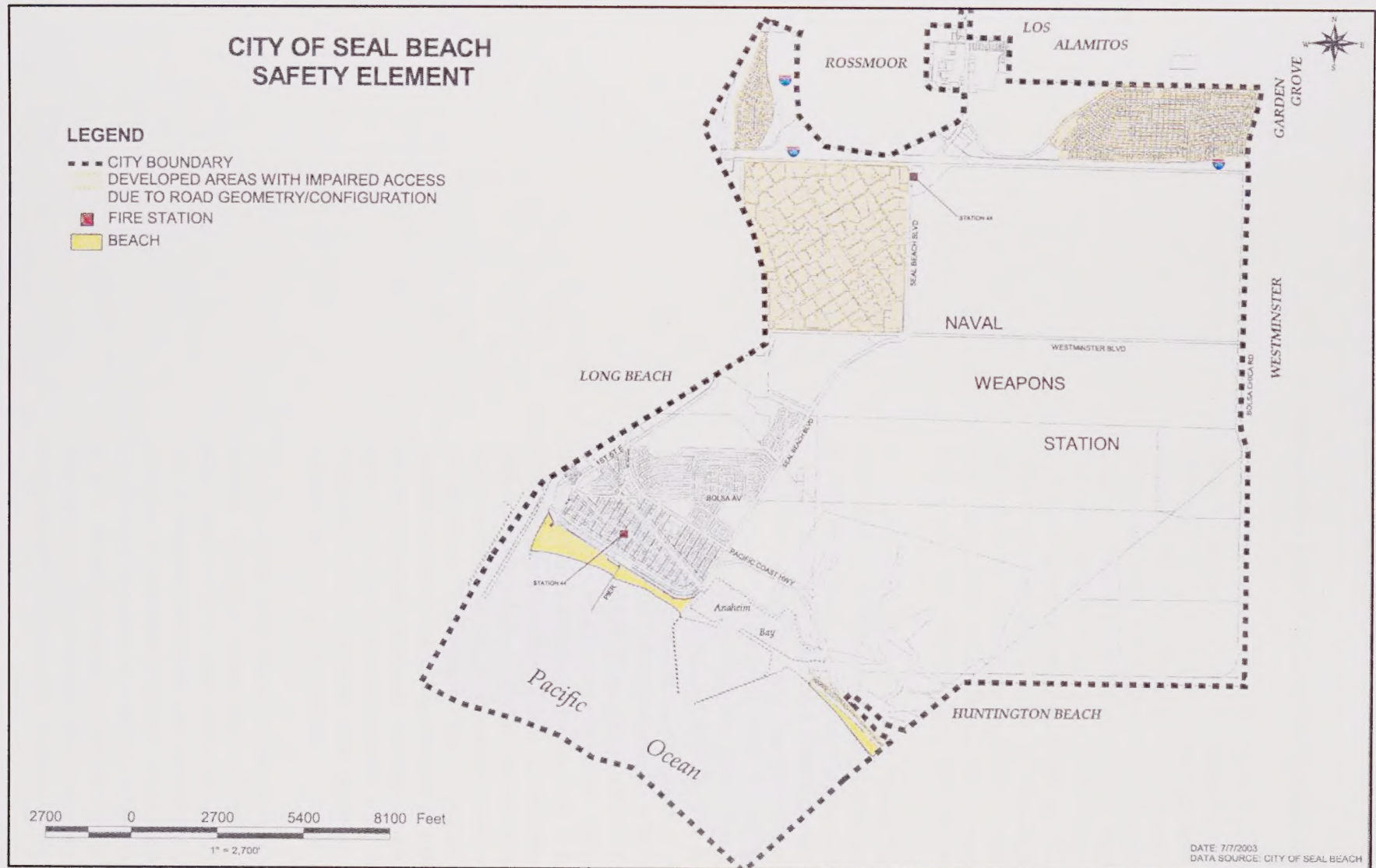


Figure S-3 - Impaired Road Access Map



College Park East, Leisure World, and Surfside

These communities, although not as restricted by access issues, face similar concerns to College Park West. These communities are subject to similar fire hazard exposures as exist in College Park West due to the threat of structural fire spread during a Santa Ana wind condition, with Surfside having the greatest exposure due to the building standards in that community. A wind-driven fire can trigger an evacuation response, particularly during a Santa Ana wind condition. In recognition of the greater fire hazard potential in Surfside, the City has required for some time that all new construction in Surfside provide residential fire sprinklers approved by the Orange County Fire Authority.

It is imperative to residents' safety that alternative routes of evacuation be established in these communities. Any route located too close to the existing roadway could quickly succumb to the same hazard that forced its closure. College Park East is served by Lampson Avenue, with two access points, one to Seal Beach Boulevard, and the other to Valley View Street in the City of Garden Grove. Leisure World has two major access points, both from Seal Beach Boulevard. The southerly access point is located adjacent to Leisure World Center, which provides an additional access point to Westminster Avenue. Surfside has two access points, both of which ultimately access Pacific Coast Highway. The primary access point is at Phillips Street, with direct access only to Pacific Coast Highway. The secondary access point, at Anderson Street, provides access to Pacific Coast Highway at Anderson Street or alternate access points to Pacific Coast Highway by way of Pacific Avenue in Sunset Beach. The location of these neighborhoods, adjacent to freeways, drainage channels, the San Gabriel River, and the Pacific Ocean make the construction of evacuation routes in these areas appear to be aesthetically and economically unsound.

The City needs to continue to investigate and implement an alternate emergency access route system that will meet the safety needs of these neighborhoods and will be consistent with community economic and environmental goals. The provision of pedestrian walkways for the Leisure World and Surfside communities could be established relatively easily to facilitate evacuations by foot. Vehicular access, however, would involve significant construction due to existing site conditions at each of these neighborhoods.



Underground Conversion of Overhead Utilities

Overhead utility lines are known hazards that can be mitigated by relocating them underground. Downed power lines can restrict and delay emergency response vehicles and evacuation. Heavy winds can cause tree branches to knock down power lines, creating a safety hazard, and power poles and utility boxes are hazards in road rights-of way.

Surfside has recently completed a comprehensive utility underground conversion program, and there are no overhead utility services present in Surfside at this time. This program was completed through a resident-approved assessment district.

Policies

- 1A. Periodically review and update the Emergency Operations Plan to ensure effective implementation of the Plan during an emergency. Incorporate into the Plan as appropriate:
 - (a) a citizen response model using a neighborhood coordinate system, such as a Neighborhood Watch program;
 - (b) a comprehensive communications component that maximizes public emergency coordination, response and resource allocation;
 - (c) a program of coordination with county, regional, state, and federal emergency agencies, schools, hospitals, and utility companies and their plans; and
 - (d) a program of coordination with the police.
- 1B. Amend the Emergency Operations Plan to include evacuation plans, and include provisions for emergency shelter, transportation, clothing, food and medical aid, identifying the facilities and persons within the community that may be utilized in an emergency and communicating this information to neighborhood associations and the American Red Cross.
- 1C. Continue to maintain the Emergency Operations Center (EOC) and provide for its adequate support and staffing,



including the acquisition and maintenance of a mobile Incident Command Support vehicle for emergency response.

- 1D. Continue the function of an emergency management coordinator within the Police Department. The duties of this position shall include, but not be limited to, ongoing training for and operation of the Emergency Operation Center, neighborhood emergency planning and support, ongoing maintenance of the Emergency Operations Plan, general public training and education, and implementation of the City's emergency planning and coordination.
- 1E. Ensure the periodic participation of appropriate City staff members in exercises designed to familiarize them with disaster response procedures and operational support for the Emergency Operations Center.
- 1F. Promote public awareness in emergency response preparedness by any effective informational media, such as an Emergency Preparedness Newsletter, neighborhood posters, and regular presentations at neighborhood association/neighborhood watch meetings.
- 1G. Ensure that disaster preparedness exercises by involved agencies are frequent enough to help improve the efficiency of participating mutual aid agencies.
- 1H. Ensure that any new street that serves as access to residential development of 5 or more dwelling units has a minimum of 2 contiguous 10-foot-wide paved travel lanes that will remain unobstructed at all times.
- 1I. Undertake a comprehensive emergency access evaluation and upgrade program that:
 - (a) will evaluate each public and private road and neighborhood in terms of providing emergency vehicle access and evacuation routes, including pedestrian accessways or trails;
 - (b) will establish a program to upgrade access-deficient roads by retrofitting them with no-parking fire lanes (established in conjunction with the affected homeowners), turn-arounds, and/or secondary access; and



- (c) will develop a primary and secondary emergency circulation plan for evacuation and emergency response.
- 1J. Encourage emergency vehicular access that is of a sufficient width to allow people and emergency equipment into the hazard area and still allow for evacuation, if needed.
- 1K. Establish and maintain no parking/tow away zones in all critical areas where feasible to keep travel lanes and street turn-around areas unobstructed at all times.
- 1L. Evaluate the location of all public facilities necessary for emergency response in relation to the City's current Hazard Maps and the level of risk associated with their locations, and move facilities located in high or extreme hazard areas to areas less subject to hazards, if feasible.
- 1M. Ensure that any new public facilities are designed and located in such a manner as to eliminate potential hazard impacts that may reduce the utility of the facility following a disaster.
- 1N. Inform utility companies of potential conflicts between the location of their facilities and the currently identified high or extreme hazard areas and encourage them to program for relocation or undergrounding of potentially impacted facilities, especially along designated primary emergency routes.
- 1O. Evaluate the City's ability to relocate service equipment, facilities, and the seat of government on an emergency basis in the event of the occurrence of a hazard that might impact existing service locations.
- 1P. Initiate discussion with utility companies to identify, establish, and maintain local emergency service facilities.
- 1Q. Continue to encourage the underground conversion of overhead utilities in existing developed areas of the City and continue to require any new development to underground utilities.
- 1R. Ensure compliance within the City of Seal Beach with the Notice Requirements of Federal Aviation Regulations Part 77, "Objects Affecting Navigable Airspace," and



with the referral requirements of *Public Utilities Code*, Chapter 4, Article 3.5, §21676.



Topic 2: Hazardous Materials

There are many definitions and descriptive names being used for the term *hazardous materials*, each of which depends on the nature of the material. For the purposes of this topic, the definition in §25501(k) of the *Health and Safety Code* will be utilized:

Any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the work place or the environment. Hazardous materials include, but are not limited to hazardous substances, hazardous waste, and any material which a handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment if released into the work place or the environment.

Hazardous materials are manufactured, transported, stored, used, and disposed of on a regular basis. Although hazardous materials incidents can happen almost anywhere, certain areas are at higher risk. Areas near roadways, railways, pipelines, airways, and waterways that are frequently used for transporting hazardous materials and areas near industrial facilities that use, store, or dispose of such materials have an increased risk. The primary transportation routes of hazardous materials in Orange County near the City of Seal Beach are the I-405 and I-605 freeways. Some transportation of hazardous materials occurs on Pacific Coast Highway and Seal Beach Boulevard within the City. The City does not have direct authority to regulate the transport of hazardous materials on state highways. The United States Department of Transportation has established regulatory criteria for safe handling and transportation of hazardous materials.

Numerous petroleum product producers with large storage facilities maintain hundreds of miles of pipelines throughout the county. However, no major oil pipelines pass through the City of Seal Beach. Westminster Avenue has a 12.75-inch Southern California Edison fuel line, which provides fuel to the generating stations in Long Beach and Huntington Beach, located within its entire right-of-way within the City. A 16-inch Long Beach Gas line follows the southerly right-of-way of the I-405 Freeway through its entire length in the City. Southern California Gas Company maintains a 34-inch gas line generally along



Lampson Avenue, Seal Beach Boulevard, and the I-405 Freeway right-of-way.

Statistically, the greatest danger to petroleum products lines and natural gas lines is an accidental dig-in due to road maintenance and utility or traffic signal systems repairs, renovations, and new construction. Protection against dig-ins is provided by Dig Alert (Underground Service Alert of Southern California), a utility-locating service paid for by the subscribers of the service and made up of counties, cities, and public/private utility companies in Southern California. A valuable tool now available to the City is the geographical information system (GIS) computer program. Imputing the locations of major petroleum products lines and natural gas lines into the City's GIS database will provide valuable information for the Emergency Services Plan. In this manner, the City will be able to isolate graphically those areas where these facilities would be in danger of failure during a seismic event or other emergency and then develop a planned response to the failure.

The airspace around the City of Seal Beach is among the busiest in the nation. Hazardous materials may be transported by air over Seal Beach or to destinations at John Wayne Airport, Long Beach Airport, and Los Alamitos Joint Forces Training Base. Finally, because Seal Beach is a coastal city, it is exposed to oil tanker traffic as well as other ships carrying hazardous materials, particularly Navy ships utilizing the Seal Beach Naval Weapons Station.

Because of the distance of the major hazardous materials transportation routes to the residential areas of Seal Beach, the threat of a significant hazardous materials emergency is minimal. Prevailing weather conditions and topography at the incident scene will largely affect the potential magnitude of hazardous materials incidents. Wind direction and velocity, ambient air and ground temperature, and precipitation and humidity will affect the spread of gases, vapors, mists, and the dusts of hazardous materials. Topography can greatly affect the behavior of gases and liquids.

The most likely hazardous materials exposure is use of hazardous materials within the City limits. Household cleaning products, pool chlorine, dry cleaning chemicals, film processing, jewelry making, hospitals, and automobile servicing involve hazardous materials and wastes. The Orange County Fire Authority needs to continue to identify and monitor commercial and industrial users of hazardous materials. It is not reasonable to



closely monitor the use of household hazardous materials, but the City has committed, through its state-mandated Household Hazardous Waste Plan, to several actions, including educational campaigns regarding reduced usage and proper disposal; promoting the County's Household Hazardous Waste Collection Centers (the nearest is located in Huntington Beach); and negotiating for annual County-sponsored collection events in Seal Beach. (Each of these collection events costs between \$30,000 and \$50,000 for an estimated 300 to 400 users or participants.)

The City of Seal Beach planned responses to radiological and hazardous chemical release conditions are provided for in the County of Orange Hazardous Materials Area Plan. This is a state-mandated plan with established criteria. The primary goal of this plan is to achieve the preservation of life, property and environment with the most effective and economical allocation of resources during a hazardous materials emergency. The City of Seal Beach is a participant in the Orange County Hazardous Waste Management Plan, which provides options for siting of hazardous waste collection, treatment, recycling and disposal facilities throughout the County. Together, these plans establish the City's responsibilities and goals and policies in dealing with a hazardous materials incident and with the identification, storage, and disposal of hazardous materials and wastes.

The City currently requires the participation of businesses in the Hazardous Materials Disclosure Program. This involves the disclosure, at the time of obtaining a City business license, of whether the business will generate or use any of the hazardous materials contained on the list of such materials, as well as their quantities. This information is forwarded to the Orange County Fire Authority, Hazardous Materials Program Office, which determines a schedule of onsite inspections. These inspections currently occur at one- to two-year intervals. During the inspections, there is a review of the businesses' hazardous material safe-handling, storage, dispensing, and disposal criteria. Any noted disposal violations are appropriately followed up by the Fire Authority.

The City currently contracts for services for small hazardous material spills, which primarily entails cleaning up spills associated with vehicular accidents. Large spills of hazardous materials would involve a response from the Orange County Fire Authority, which has four Level A Hazardous Materials Mobile Units. The City has a joint powers agreement with the County for mutual aid and joint cost support of these units. In very large spills of hazardous materials, a responsible party is identified, and pri-



vate firms are contracted for an appropriate and safe clean-up of the site at the responsible party's expense.

Gasoline in underground storage tanks in service stations is considered to be a hazardous material. State, county, and city Health and Fire Codes require special tanks for underground storage. Seal Beach is in the process of removing the known non-complying tanks. Monitoring of some sites is still taking place to identify any contaminants requiring clean-up.

Marine oil spills are considered to be a hazardous material emergency and are typically multi-jurisdictional events. The City of Seal Beach is a participant in the Orange County Operational Area Marine Oil Spill Contingency Plan (OSCP). The OSCP is a component of the Orange County Hazardous Materials Area Plan. The Office of Oil Spill Prevention and Response (OSPR) and the U.S. Coast Guard have primary responsibilities for the clean-up and response effort in coordination with the responsible party. The shoreline is a very significant environmental and recreational resource to the City that could be adversely affected in the event of an oil spill, particularly with the Seal Beach National Wildlife Refuge being directly exposed to ocean waves through Anaheim Bay. The City of Seal Beach will continue to oppose offshore oil drilling when environmental, aesthetic and economic resources are threatened and will continue to monitor the federal government's offshore leasing program to ensure that the impacts of the program on the coastal environment are known and considered.

The Seal Beach Naval Weapons Station and the Los Alamitos Joint Forces Training Base are both involved in Installation Restoration programs to remediate past practices that have resulted in violations of appropriate groundwater, surface water, and soil contamination standards of the state and federal government. Both of these facilities have established a Restoration Advisory Board (RAB), which comprises appropriate state and federal reviewing agencies and the general public. The City is represented on the Naval Weapons Station RAB, and city staff provides information to the City Council and the Environmental Quality Control Board regarding proposed restoration activities, and will propose comments regarding those proposed activities. Although not a member of the Los Alamitos Joint Forces Training Base RAB, the City does receive documents relating to restoration activities, and does review and comment on those activities also.



As a storage facility for naval ordnance, the Seal Beach Naval Weapons Station is a source of hazardous materials. As such, the Navy has developed weapons handling procedures to safeguard against the potential of an accident involving hazardous materials.

Another possible source of a hazardous material is a sewage spill or a mixing of sewage, industrial waste or pollutant discharges with storm drainage waters. This is naturally not acceptable, but operational maintenance and system capacities must support the strict performance standard of proper separation and treatment.

In Seal Beach the San Gabriel River has been particularly problematic in regards to water quality. The State Water Quality Control Board is charged with the responsibility for improving water quality in creeks and the ocean. The Los Angeles Regional Water Quality Control Board has jurisdiction over the San Gabriel River. Each year, a winter storm “first flush” will adversely impact the water quality in the San Gabriel River, which directly impacts water quality along the beach area adjacent to the mouth of the San Gabriel River. These adverse water quality incidents have caused Orange County health officials to close Seal Beach to water recreation activities on many occasions. Adverse water conditions can have serious health consequences for swimmers. Human and animal wastes carry bacteria and viruses that can cause hepatitis and typhoid fever, although the most common ailment is diarrhea according to Orange County health officials. The Seal Beach City Council has requested the appropriate water quality agencies to develop programs to protect the water quality of water emptying into the San Gabriel River, and ultimately into the Pacific Ocean.

The Santa Ana RWQCB, under the authority of the State Water Resources Control Board, has the authority for permitting waste discharges to land or surface waters through a National Pollution Discharge Elimination System (NPDES) permit and also formulates and adopts a Basin Plan for the Santa Ana Region that defines water quality objectives and beneficial uses. The Santa Ana Basin Plan sets narrative and numerical objectives that must be attained (or maintained) and describes implementation programs to protect all waters in the region. The NPDES storm water management program also calls for the implementation of Best Management Practices (BMPs) to the “maximum extent practicable (MEP) in providing control for non-point source pollution and urban runoff. BMPs consist of activities, practices, and/or procedures that reduce non-point sources of pollution such as automotive by-products, trash, food wastes,



landscape and agricultural runoff, including fertilizers and pesticides, and runoff from construction sites.”

Policies

- 2A. Coordinate with federal, state, and county hazardous waste management plans to protect the health and welfare of the public, the environment, and the economy of the City of Seal Beach through comprehensive programs that ensure safe and responsible management of hazardous waste and materials.
- 2B. Implement the measures outlined in the City’s Household Hazardous Waste Plan, Orange County’s Hazardous Waste Management Plan and Hazardous Materials Area Plan, and the County’s Operational Area Marine Oil Spill Contingency Plan to ensure the effective management, transportation and disposal of hazardous waste on a City-wide level.
- 2C. Support enforcement of state “right to know” laws, which outline the public’s right to information about local toxic producers.
- 2D. Encourage and support the use of alternatives to toxic materials in the home and yard.
- 2E. Encourage and support the use of central drop-off centers and/or mobile collection vehicles for proper disposal of hazardous materials. Investigate the establishment of drop-off centers and/or mobile collection vehicles within the City and the establishment of a user fee to pay for such services.
- 2F. Facilitate coordinated, effective response to hazardous materials emergencies in the City to minimize health and environmental risks.
- 2G. Promote public awareness in hazardous materials emergency response preparedness by any effective informational media, such as an Emergency Preparedness Newsletter, neighborhood posters, and at least annual presentations at neighborhood association meetings.
- 2H. Support the continuation of the Orange County Fire Authority’s hazardous materials disclosure program. Ensure



annual inspections of businesses that generate or use hazardous materials, and identify and monitor any historical hazardous materials sites within the City for public health and safety issues.

- 2I. Promote public participation and education in the implementation of the programs identified in the County's Hazardous Materials Management Program.
- 2J. Encourage the Fire Authority to monitor the flow of hazardous materials through the City to ensure public safety.
- 2K. Encourage coordination between the Orange County Fire Authority and the Seal Beach Police Department in the designation of routes and enforcement of hazardous materials, routing ordinances, and laws, with the I-405 Freeway as the primary designated route.
- 2L. Oppose offshore oil leasing because potential offshore oil spills are a hazard to people and marine resources.
- 2M. Monitor the federal government's offshore oil leasing program to ensure that the impacts of the program on the coastal environment are known and considered.
- 2N. Facilitate the proper separation of sewer and storm drain systems through construction upgrades and operation and maintenance of sewer and storm drain infrastructure to eliminate the flow of sewage into the City storm drains.
- 2O. Facilitate coordination and participation by all of the jurisdictions that make up the Los Angeles and Santa Ana Regional Water Quality Control Boards to improve water quality. Encourage the elimination of sewer discharges and non-point source pollution into the San Gabriel River.
- 2P. Monitor the Installation Restoration activities of the Seal Beach Naval Weapons Station and the Los Alamitos Joint Forces Training Base, and attempt to ensure that any site restoration activities are conducted to residential clean-up standards and comply with all appropriate regulatory agency requirements.
- 2Q. Minimize the presence of animal fecal waste, which jeopardizes the public health.



- 2R. Limit disturbance of natural water bodies and drainage systems, conserve natural areas, protect slopes and channels, and minimize impacts from storm water and urban runoff on the biological integrity of natural and drainage systems and water bodies.
- 2S. Minimize changes in hydrology and pollutant loading, require incorporation of control, including structural and non-structural BMPs to mitigate the projected increases in pollutant loads and flows, ensure that post-development runoff rates and velocities from a site have no significant adverse impact on downstream erosion and stream habitat, minimize the quantity of storm water directed to impermeable surfaces and the MS4s, and maximize the percentage of permeable surfaces to allow more percolation of storm water into the ground.
- 2T. Preserve wetlands, riparian corridors, and buffer zones and establish reasonable limits on the clearing of vegetation from the project site.
- 2U. Encourage the use of water quality wetlands, biofiltration swales, watershed-scale retrofits, etc. where such measures are likely to be effective and technically and economically feasible.
- 2V. Provide for appropriate permanent measures to reduce storm water pollutant loads in storm water from the development site.
- 2W. Establish development guidelines for areas particularly susceptible to erosion and sediment loss.



Topic 3: Geologic Hazards

Seismic Hazards Mapping Act

Prompted by damaging earthquakes in northern and southern California, in 1990 the state legislature passed the Seismic Hazards Mapping Act. The purpose of this Act is to protect public safety from the effects of strong ground shaking, liquefaction, landslides and other ground failures, and other hazards caused by earthquakes. The State Geologist is mandated to prepare “Seismic Hazard Maps” that delineate the following seismic hazard zones:

- Amplified shaking hazard zones,
- Liquefaction hazard zones, and
- Earthquake-induced landslide hazard zones.

The seismic hazards maps are 7½° California Geological Survey Quadrangles (Scale 1-24,000). The seismic hazards maps for the Seal Beach area were released on March 25, 1999. The map shows areas where liquefaction or landslide movement is known to have occurred and areas where the potential exists for liquefaction or landslide movement (refer to Figure S-6 on page 51).

Geology

Regional Setting

Southern California is composed of several tectonic plates that move relative to each other. The primary zone of contact between these plates is the San Andreas Fault zone, lying about 60 miles north/northeast of the City of Seal Beach. The area west of the San Andreas Fault is known as the Pacific Plate, which is moving north relative to the North American Plate on the east side of the fault. Each large plate is composed of smaller plates, moving relative to each other. The relative movements and collisions of these plates have created structures and geomorphic features with various orientations.

The City of Seal Beach is in the Los Angeles coastal plain in the Peninsular Ranges of southern California, made up of hills and ranges with intervening, long, and narrow valleys that trend northwest. Some of the higher peaks in Southern California,



such as San Jacinto peak at 10,831 feet above sea level, are in the Peninsular Ranges. Much of the coastal margin has single or multiple wide flat benches upon which the highways and coastal cities are situated. The City is shown on the Regional Seismic Map (Figure S-4 - Regional Seismic Map).

The City of Seal Beach is in a zone of deformation extending from the foot of the Santa Monica Mountains near Beverly Hills, southeasterly as far as Newport Beach. It is called the Newport-Inglewood belt of hills and plains. This belt is actually the surface expression of the Newport-Inglewood Fault zone. The zone varies in width from one to four miles and includes a series of folds that have given rise to most of the surface hills, plains, and mesas. The flat areas represent segments of the Pleistocene land surface that was uplifted, tilted southward, and folded by earth movements.

Topography

The majority of the City is located within an alluvial plain that extends southward from the convergence of Coyote Creek and the San Gabriel River. The two channels drain from the northeast and north, respectively, and the combined flow reaches the sea at Alamitos Gap. Landing Hill, located within Seal Beach, and Alamitos Heights in Long Beach and Bolsa Chica Mesa in Huntington Beach, consisting of uplifted blocks within the Newport-Inglewood Fault zone, are the major topographic features within and near the City. Elevations within the City vary from approximately sea level along the Pacific Ocean to 60 feet at Landing Hill. The Landing Hill area is part of the Newport-Inglewood Fault System.

Faulting and Seismicity

Seismic Measurement

Earthquakes are measured two different ways – the Richter scale (magnitude of energy released) and the Modified Mercalli scale (intensity of movement or affects of shaking).

The Richter scale is a well known, but often misunderstood, system used primarily by seismologists to evaluate and compare the energy of individual quakes according to an absolute and objective scale. The magnitude of energy released is calculated from the instrumental record made by the event on a calibrated seismograph. Seismographs record a zigzag trace that shows the varying amplitude of ground oscillations beneath the instrument.



Magnitude is expressed in whole numbers and decimal fractions. Because of the logarithmic basis of the scale, each whole number increase in magnitude corresponds to the release of about 30 times more energy than the amount associated with the preceding whole number value. The 1906 San Francisco earthquake with a magnitude 8.3 generated 1 million times more energy than the 4.3 magnitude earthquake that occurred in Laguna Beach in 1969. Furthermore, the Richter magnitude does not give any indication of the actual damage caused by the quake. Other factors must be considered: distance to the epicenter and its focal depth, as well as geological conditions at the location of damage. Even with these data, the Richter magnitude is more meaningful and useful to the scientist than the layman.

The Modified Mercalli scale is subjective and related not to the energy released, but to people's perception of the quake and the damage done, as determined by field surveys. This scale is more significant to the public, since its steps are delineated by cracked plaster, fallen buildings, ground failure, and citizens' panic, rather than energy relationships measured by instruments. The Modified Mercalli Scale provides a description of the effect of the different levels of earthquake intensity with the corresponding Richter scale (refer to Table S-1).

The Los Angeles Basin in which the alluvial plain is located is one of the most active seismic regions in the United States. Each year, low and moderate intensity earthquakes occur within or near the region. Southern California is likely to experience, on average, one earthquake of M 7.0 and ten earthquakes of M 6.0 over a period of ten years. There are several active and potentially active fault zones that could affect development in the area. Maximum credible earthquake (MCE) magnitudes resulting from potential seismic activity on various active faults are discussed in the following section and presented in Table S-2 on page 42.



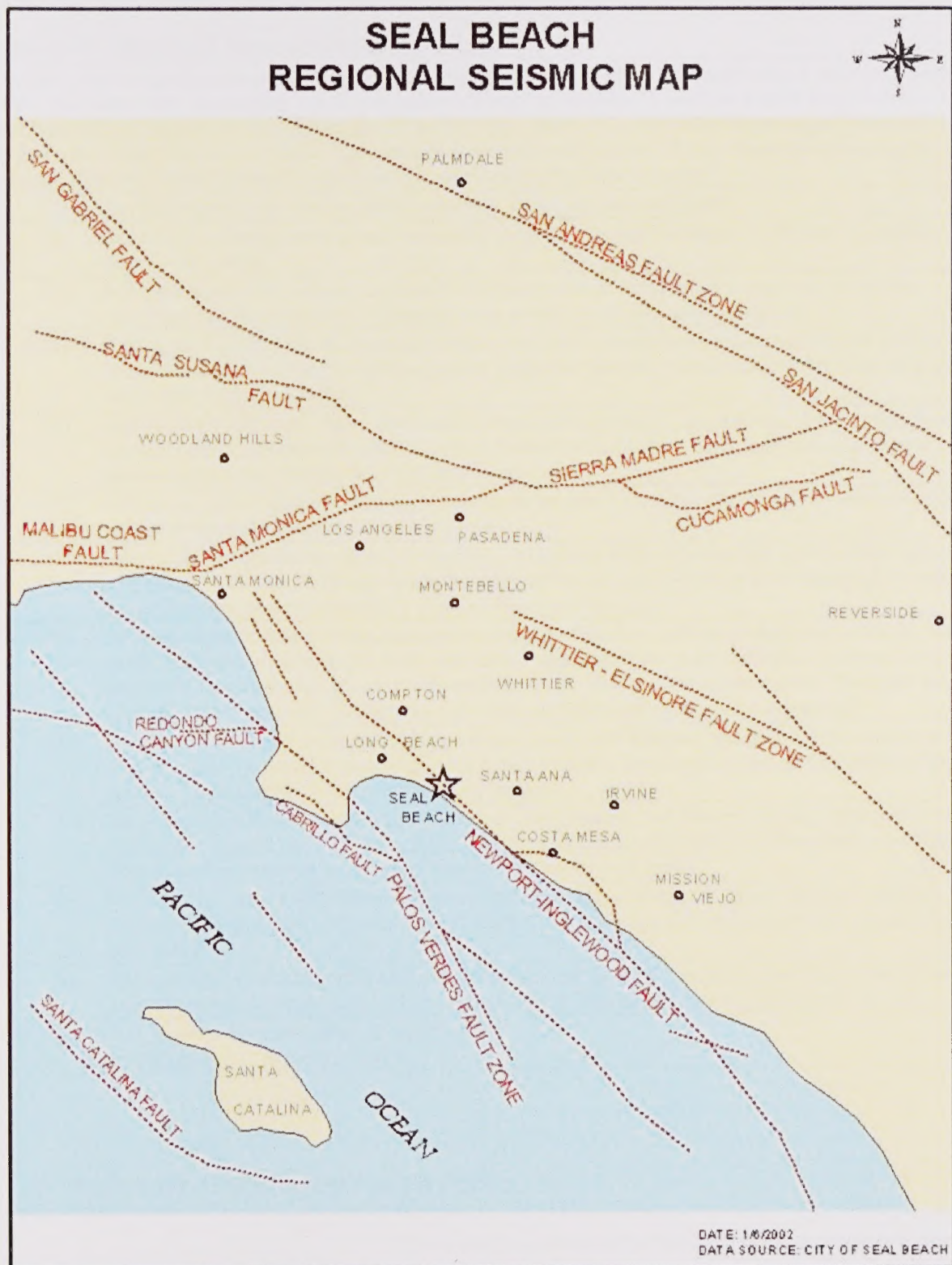


Figure S-4 - Regional Seismic Map



Table S-1 - Modified Mercalli Intensity Scale

The first scale to reflect earthquake intensities was developed by de Rossi of Italy and Forel of Switzerland in the 1880s. This scale, with values from I to X, was used for about two decades. A need for a more refined scale increased with the advancement of the science of seismology, and in 1902 the Italian seismologist, Mercalli, devised a new scale of a I to XII range. The Mercalli Scale was modified in 1931 by American seismologists Harry O. Wood and Frank Neuman to take into account modern structural features:		
I	(2)	Not felt except by a very few under especially favorable circumstances
II	(2)	Felt only by a few persons at rest, especially on upper floors of buildings. Delicately suspended objects may swing.
III	(3)	Felt quite noticeably indoors, especially on upper floors of buildings, but many people do not recognize it as an earthquake. Vibration like a passing truck. Duration estimated.
IV	(4)	During the day felt indoors by many, outdoors by few. At night some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.
V	(4)	Felt by nearly everyone, many awakened. Some dishes, windows, etc., broken. A few instances of cracked plaster; unstable objects overturned. Disturbances of trees, poles, and other tall objects sometimes noticed. Pendulum clocks may stop.
VI	(5)	Felt by all, many frightened and run outdoors. Some heavy furniture moved; a few instances of fallen plaster or damaged chimneys. Damage slight.
VII	(5-6)	Everybody runs outdoors. Damage negligible in building of good design and construction; slight to moderate in well-built ordinary structures; considerable in poorly-built or badly designed structures; some chimneys broken. Noticed by persons driving motor cars.
VIII	(6)	Damage slight in specially designed structures; considerable in ordinary substantial buildings, with partial collapse; great in poorly built structures. Panel walls thrown out of frame structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned. Sand and mud ejected in small amounts. Changes in well water. Persons driving motor cars disturbed.
IX	(7)	Damage considerable in specially designed structures; well designed frame structures thrown out of plumb; great in substantial buildings, with partial collapse. Buildings shifted off foundations. Ground cracked conspicuously. Underground pipes broken.
X	(7-8+)	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundation; ground badly cracked. Rails bent. Landslides considerable from river banks and steep slopes. Shifted sand and mud. Water splashed (slopped) over banks.
XI	(8+)	Few, if any, (masonry) structures remain standing. Bridges destroyed. Broad fissures in ground. Underground pipelines completely out of service. Earth slumps and land slips in soft ground. Rails bent greatly.
XII	(8+)	Damage total. Practically all works of construction are damaged greatly or destroyed. Waves seen on ground surface. Lines of sight and level are distorted. Objects are thrown upward into the air.
Note: Numbers in parenthesis denote Richter Magnitude		
Source: "California Geology," September 1984		

Active and Potentially Active Faults

Active faults are considered likely to undergo renewed movement within a period of concern to humans. These include faults that are currently slipping, those that display earthquake activity, and those that have historical surface rupture. The California Division of Mines and Geology defines active faults as



those that have had surface displacement within Holocene time (about the last 11,000 years). Such displacement can be recognized by the existence of sharp cliffs in young alluvium, unweathered terraces, and offset modern stream courses. Potentially active faults are those believed to have generated earthquakes during the Quaternary period, but prior to Holocene time.

Regional Seismic Conditions

Southern California is located in a seismically active area. There have been many earthquakes throughout recorded history; some have been large. The 1933 Long Beach quake was the most powerful and closest shock to hit Seal Beach in living memory, and the 1994 Northridge quake was the most recent powerful shock. Both of these were felt widely across the Los Angeles basin and caused considerable damage. In October, 1969, a quake occurred that was felt predominantly in Laguna Beach and South Laguna. By way of comparison, the three quakes listed above had the following Richter magnitudes: 1933 Long Beach - 6.3; 1994 Northridge - 6.8; 1969 Laguna Beach - 4.3. The respective Mercalli magnitudes as perceived in Seal Beach were VI, V, and III.

Table S-2 shows that among the 10 active faults and fault zones identified within 100 km of the City of Seal Beach, 3 faults are expected to generate earthquakes of significance. These are the Newport-Inglewood, the Whittier-Elsinore and the Palos Verdes Fault zones. Despite MCE values of M7.5 and larger, the San Andreas, Raymond, San Fernando-Sierra Madre, and San Jacinto systems are of secondary consideration because of their large distances from the City. With expected accelerations below 0.4 g, damage from ground shaking generated along the Whittier-Elsinore Fault and the offshore Palos Verdes Fault could be reduced effectively by complying with ordinary California Uniform Building Code requirements for Seismic Zone 4. However, the proximity of the northwestern tip of the Newport-Inglewood northern (upper) branch, calls for extremely detailed site-specific geotechnical investigations in areas impacted by the Newport-Inglewood Fault. These earth-engineering studies would better and more accurately estimate the reaction of the surficial sediment to the design-earthquake for this segment of the Newport-Inglewood Fault.



Newport-Inglewood Fault Zone

This zone (see Figure S-5), made up of several faults and fractures, extends southeast through the Los Angeles Basin. The north branch of the Newport-Inglewood Fault (distinctly different from the fault zone) is made up of up to 3 segments; thus, the accurate location of individual fault traces is likely to be uncertain. The fault is at least 10 miles long, and its Holocene activity is revealed by characteristic offset stratigraphy and groundwater cut-offs in young Quaternary alluvium. The activity of this fault was proven by the 1933 Long Beach M6.2 earthquake. The Seal Beach Fault, a segment of the Newport-Inglewood Fault zone, is located within the City and generally parallels the coastline, extending from Long Beach generally through the Hellman Ranch property and the Seal Beach Naval Weapons Station, southerly through Huntington Beach and along the coast to Newport Beach. Exploration wells have identified the Seal Beach Fault at a depth of over 4,000 feet. The Seal Beach Fault is considered potentially active and is included in the Earthquake Fault Zones established under the Alquist-Priolo Earthquake Fault Zoning Act.

The Alquist-Priolo Earthquake Fault Zoning Act was passed in 1972 to mitigate the hazard of surface faulting to structures for human occupancy. The main purpose of the Act is to prevent the construction of buildings used for occupancy by humans on the surface trace of active faults.

Under the Act, the State Geologist has established regulatory zones on the surface traces of active faults and is distributing maps of these zones to all affected cities, counties, and state agencies. The zones are referred to as "Earthquake Fault Zones" (formerly called "Special Study Zones") and provide the municipality or jurisdiction with a tool to plan and control new or renewed construction within the fault zones.

Before a proposed project can begin, a geotechnical investigation must be undertaken in order to ascertain whether the project is on or near an active fault. A structure for human occupancy cannot be placed over the trace of an active fault, and must be set back a specified distance from the fault (generally 50 feet).

Whittier-Elsinore Fault Zone

This zone is located approximately half way between the San Andreas Fault and the Pacific shore. The Elsinore Fault system



bounds the northern edge of the Santa Ana Mountains. The Glen Ivy North and Glen Ivy South Faults are the two Elsinore system members that could most likely affect the City, and are 20 to 25 miles away. The north branch, at least 17 miles in length, shows Holocene activity through offset stratigraphy and characteristic physiographic features. Moreover, this fault is believed to be the originator of the M6 earthquake of 1910 in the area. The Whittier Fault, 16 miles away from the City, offsets Holocene stratigraphy near the Santa Ana River. It is believed that the 1987 Whittier-Narrows M5.9 earthquake occurred along concealed thrust segments of this fault, located 6 to 10 miles below the earth surface. For a given earthquake magnitude, a thrust faulting mechanism may generate the highest peak acceleration when compared with other mechanisms, and thus may cause damage in excess of that anticipated.

Palos Verdes Fault

This fault separates the Palos Verdes hills from the Los Angeles basin. The fault has an active offshore component crossing the San Pedro shelf, and is located 15 miles away from the City.

Potentially Active Faults

Potentially active faults – i.e., those that show evidence of displacement during the last 2 million years, but not during the last 11,000 years – are represented in the general area of the City by the Camarillo-Simi-Santa Susana, Indian Hill-San Jose, Eagle Rock-San Rafael, and Mission Hills fault systems. Because their effect on the overall seismicity of the City is minimal when compared to the activity of Holocene faults, they are not considered further.



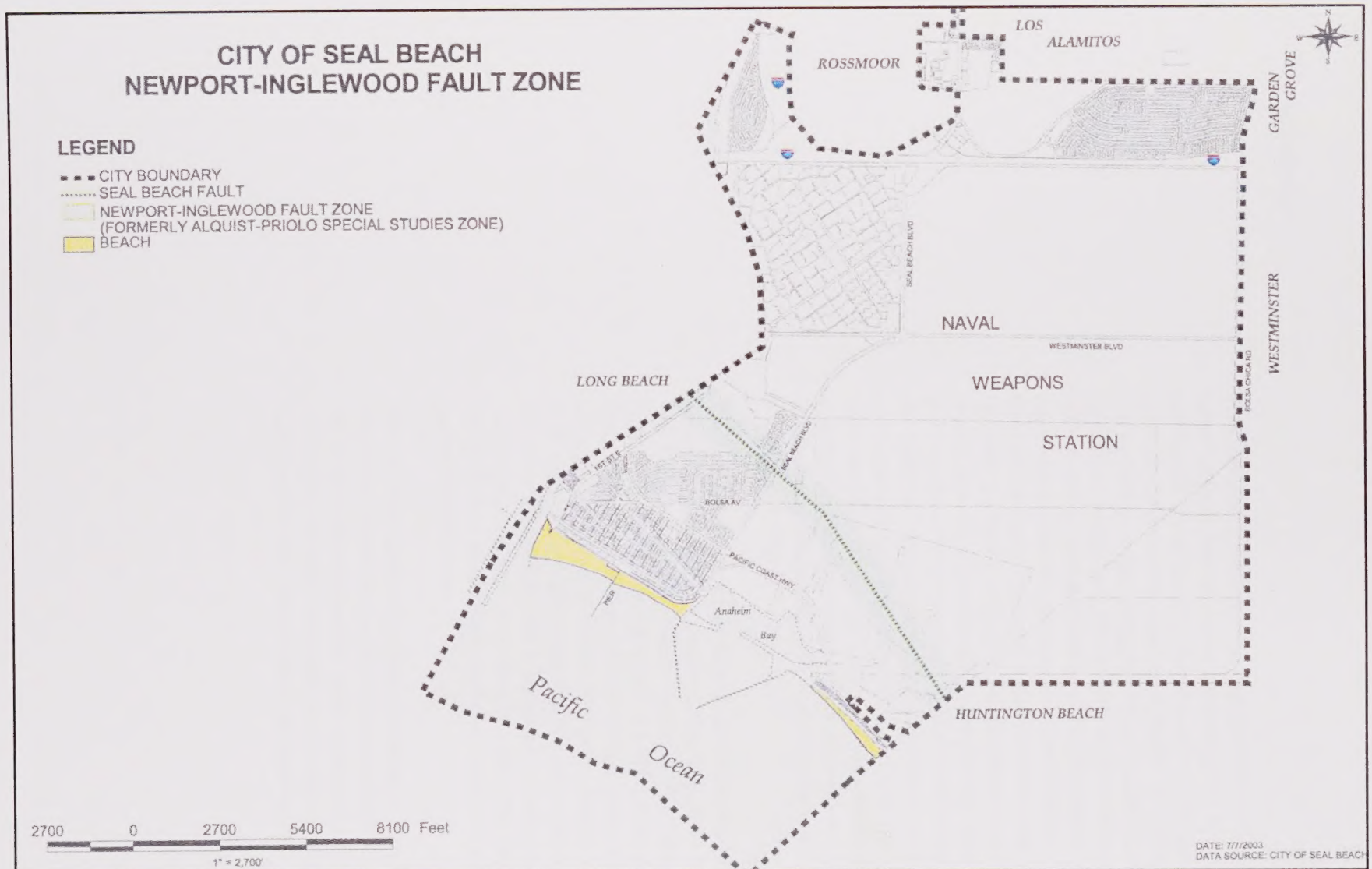


Figure S-5 - Fault Zone Map



Seismicity

The expected ground motion characteristics of earthquakes at a given location depend on the distance of the source of the earthquake to the site, the characteristics of the generating fault (intensity of the earthquake and duration of shaking), and the site-specific geologic and geotechnical conditions. All other conditions being equal, the severity of groundshaking increases with proximity to the epicenter of the earthquake. Assuming equal distance to the epicenter and equal seismic energy output, the least amount of damage would occur on a site underlain by bedrock at a shallow depth. A site underlain by thick alluvium would experience considerably more damage because of the soil's tendency to permanently deform to a greater degree than the bedrock. The intensity of groundshaking (maximum horizontal ground acceleration) is measured relative to the acceleration caused by gravity (g). California Uniform Building Code standard engineering designs for Seismic Zone 4 can be applied to accelerations less than 0.4g. Special designs are necessary for values above 0.4g.

The most likely source of strong earthquake shaking within the general area would be a major earthquake (up to M8.25) on the San Andreas Fault, 58 miles to the north-northeast. This active fault is believed to have a recurrence interval of 100 to 200 years. Although the San Andreas Fault is expected to generate strong earthquakes, because of the great distance between this fault and the City, the average peak acceleration is expected to be within the 0.4 g bound as indicated in Table S-2. The Newport-Inglewood fault zone, located within the City and designated the Seal Beach Fault, is likely to generate 0.5g or higher ground accelerations.

The greatest hazard from ground-shaking is the effect on the structures and the occupants of the structures. The manner in which structures respond to earth movements is dependent upon the type of construction, the underlying geology, and the magnitude of and distance from the earthquake.



Table S-2 - Maximum Credible Earthquake Magnitudes for Selected Active Southern California Faults within 62 Miles of the City, Their Distance to the City and Average Peak Rock and Stiff-Soil Acceleration

Active Faults and Active Fault Zones ¹	MCE ² (Magnitude)	City-to-Fault Trace Distance ³ (miles)	Estimated Average Peak Acceleration in City During Maximum Credible Earthquake (as fraction of acceleration due to gravity)	
			Average of 6 Studies ⁴	According to Idriss, 1985
Cabrillo Fault	6.5	16	0.15	0.14
Cucamonga Fault	7.0	36	0.08	0.08
Malibu-Santa Monica-Raymond fault zone (Raymond Active)	7.5	30	0.14	0.13
Newport-Inglewood fault zone	7.0	-	0.52	0.49
Palos Verdes fault zone	7.0	15	0.21	0.20
San Andreas (Central)	8.25	58	0.10	0.12
San Andreas (Southern)	7.75	60	0.07	0.08
San Fernando-Sierra Madre fault zone	7.5	32	0.135	0.12
San Jacinto fault zone	7.5	55	0.07	0.07
Whittier-Elsinore fault zone	7.5	16	0.25	0.23
¹ Compiled from Ziony and Yerkes (1985). ² Following Mualchin and Jones (1992), similar to Greensfelder (1974); Cucamonga fault upgraded from M6.5 to M7.0. Retained Greensfelder's M 8.25 for San Andreas fault (Central) and upgraded MCE for San Andreas (Southern) from M7.5 to M7.75. ³ Approximated graphically from Greensfelder's map (1974). ⁴ Studies included in Mualchin and Jones (1992).				

Statewide seismic design standards for new construction were not included in building codes until 1933, after the Long Beach earthquake. Although seismic design standards have improved over the years, they are minimum standards and will not make buildings completely resistant to damage from earthquakes. Seismic design standards are only meant to increase structural stability, reduce damage, and minimize loss of life.

Generally, certain types of construction withstand ground movement better than others. Wood frame, single-story residential structures are the most stable during an earthquake. Structures with unreinforced masonry walls are the structures most susceptible to damage. Unreinforced masonry construction was prevalent during the late 1800s to early 1900s for commercial structures. There are no unreinforced masonry buildings in Seal Beach today.



The local geology affects the intensity of earthquake shockwaves as they pass through the area. All of Seal Beach is located on thick alluvial sediments. Severe damage to structures can result where tall structures are built over thick, soft, water-saturated soils. The presence of a high water table can make damage worse. Areas of thick surficial soils on hillsides may also be susceptible to increased shaking. Geologic conditions vary so markedly that each individual site must be evaluated to determine the seismic standards necessary for construction.

Some facilities warrant special seismic standards because of their occupancy and/or their function. Schools, hospitals, and facilities necessary for emergency operations fall into this category. Other facilities, such as utility lines, warrant special attention to siting and seismic design standards. The Uniform Building Code addresses these facilities under the classification of “essential facilities.” Public schools in California fall under the approval authority of the State Architect, who enforces the high standards of earthquake bracing for all new schools. Hospitals, clinics, and nursing homes fall under the jurisdiction of the Office of State-wide Health Planning and Development. Seismic standards are enforced on all other structures by the City.

A major earthquake of magnitude 7 or greater (Richter) on the Newport-Inglewood Fault could have serious effects on the lifelines (facilities such as highways, bridges, electrical power lines, gas lines, water and sewage lines and communication lines) in Seal Beach according to Special Publication 99, prepared by the Division of Mines and Geology and the Department of Conservation. The hypothetical earthquake is postulated as a possible worst case for emergency planning. Potentially damaging shaking could continue for about 25 seconds within 25 miles of the Newport-Inglewood Fault Zone, with surface displacements averaging 3 feet to 6 feet occurring on discontinuous segments of the active fault segments.

This planning scenario earthquake could have the following major impacts in the Seal Beach area:

- Pacific Coast Highway through Long Beach is closed (open to local emergency traffic only) from the Los Angeles River east to 7th Street.
- Pacific Coast Highway south of 7th Street in Long Beach to Corona Del Mar is closed due to many pavement breaks and settlements. Short portions are open, but no significant through traffic is able to use the route. Reopening the entire route in less than 72 hours is not expected. However, short



portions may be accessible to emergency traffic in less than 24 hours.

- Garden Grove (SR 22) Freeway is damaged at the interchange with the 405 Freeway.
- Moderate damage at the Garden Grove/405 Freeway interchange combined with fill settlements has blocked traffic flow on the Garden Grove Freeway for 36 hours.
- The 405 Freeway is closed from the Garden Grove Freeway to San Diego Creek. This route in the Westminster and Fountain Valley area has suffered considerable pavement and liquefaction damage. The 405 Freeway is not expected to be reopened to through traffic in less than 72 hours. However, short segments north of the Santa Ana River may be opened to restricted traffic in 36 hours.
- At the 405/605 Freeway interchange, minor bridge damage in the interchange area has restricted traffic to a single lane.
- Los Alamitos Joint Forces Training Base is closed for 24 hours due to runway damage due to liquefaction.
- Seal Beach Naval Weapons Station railroad facilities closed for more than 72 hours due to major disruption of tracks within the Station.
- Telephone service severely restricted to emergency service providers for at least 72 hours.
- Harbor, Long Beach, Los Alamitos, Haynes, and Huntington Beach power plants all shut down for more than 72 hours. Able to operate at no more than 50 percent of capacity for 30 to 60 days.
- All along and adjacent to a zone of surface rupture, there are thousands of damaged and leaking gas lines, valves, and service connections. There are numerous fires in streets at broken gas lines.
- Substantial damage to water distribution systems is expected. Within the fault zone, the distribution system will be 95 percent out of order.
- About 25 percent of all electrical service connections within the impact area are expected to be without electrical power for the first 24 hours. Restoration of power could vary from 1 to 14 days.
- Orange County Sanitation District Plants #1 and #2 are expected to be shut down for several weeks, with sewage overflows being bypassed to the Santa Ana River Channel, contaminating nearby beaches.
- Ground failures in the Seal Beach area have damaged oil storage facilities and related piping with consequent fuel spillage into Alamitos Bay.



Underground waste water pipelines could be expected to perform reasonably well except in liquefaction areas, where significant damage should be anticipated. Potential failure locations are at connections between service lines and transmission lines. In addition to loss of sanitary sewer service to thousands of people, the most serious impact of the projected damage to the waste water system would be the contamination problems of the discharge of untreated sewage into the ground, the streets, and the ocean. The primary impact on natural gas facilities would be fires, which could be expected due to broken gas mains and service connections in the areas of high liquefaction potential. Fires can be very difficult to deal with when there are damaged roadways and broken water lines, combined with disrupted communication lines. Preparedness for seismic disturbance is of very great importance relative to gas service.

Geologic Hazards

Geologic hazards affecting the City area are direct, construction-related effects and indirect effects that occur only during earthquakes. Table S-3 presents five construction-related effects and two indirect, earthquake-induced impacts. Other generally recognized impacts are simply not expected within the majority of the City for various reasons. Tsunamis would only affect the shoreline along the Pacific Ocean and at Anaheim Bay. Similarly, the potential impact on mineral resources exists only on the Hellman Ranch property and the Seal Beach Naval Weapons Station, as those are the only mineral production areas within the City. Landsliding, either as a direct impact or as an earthquake-induced event, would only occur in close proximity to Landing Hill, due to the practically flat site topography of the remainder of the City.

Because the most hazardous impacts are those related to, and triggered by, seismic events, detailed presentations on “Ground-shaking” and “Soil Liquefaction” are included in the next two sections.



Table S-3 – Summary of Geologic Impacts

Impacts	Impact			
	Occurrence Probability	Effect	Duration	Significance
1. Alteration of natural topography, caused by grading at a project site	Certain	Direct	Long-term	Insignificant
2. Wind and water erosion during project development	Possible	Direct	Short-term	Significant
3. Sloughing/caving of excavations in saturated unconsolidated/noncohesive sediments	Possible	Direct	Short-term	Significant
4. Secondary soil consolidation; uneven and/or excessive settlement	Possible	Direct	Long-term	Significant
5. Prime farm land removed from agricultural inventory	Certain	Direct	Long-term	Significant
6. Earthquake hazard; strong groundshaking of unconsolidated alluvium, danger to humans and structures	Possible	Indirect	Long-term	Significant
7. Earthquake hazard; unconsolidated alluvium liquefaction	Possible	Indirect	Long-term	Significant

Groundshaking during Moderate to Strong Earthquakes

Groundshaking is the movement of the earth during an earthquake. This type of deformation does not necessarily cause permanent ground displacement, but improperly designed structures can be damaged by groundshaking, with considerable property losses and possible endangerment of human life.

At present there are several ways of estimating shaking magnitude at a particular site. Seismic intensities or peak horizontal acceleration and velocity can be calculated. Such calculations provide an estimate of the shaking potential that is essential for design and building codes.

Because the Los Angeles Basin is an earthquake-prone area, it is not possible to plan and construct buildings that are completely risk-free in the region. Strong ground movements are unavoidable during major earthquakes. However, at present, buildings are constructed in Southern California with a quantitative knowledge of the magnitude and shaking intensity the buildings can safely accommodate, with knowledge of the seismic pa-



rameters expected at the site, and with information obtained specifically at the site regarding the ground reaction to seismic events. This generally reduces ground-movement risk to a less-than-significant level.

Site-specific data regarding geologic characteristics and earth-engineering properties are determined by geotechnical investigation at an early phase of a project design. Earth engineering consulting firms can generate a picture, based on site-specific data, that quantifies ground motion during any assumed magnitude earthquake. The major geologic data on which the assessment is based include the thickness of Holocene and Quaternary deposits, the depth to cemented alluvium, and the depth to the crystalline basement. It is generally accepted that the thicker the Quaternary alluvium and the more deeply buried the crystalline base, the stronger the ground response to any given seismic event.

The necessary earth-engineering data are the textural characteristics, such as the proportion of silt and clay, and the mean sediment void ratio. It is also accepted that the higher the proportion of fines and the higher the void ratio (strongly correlated in unconsolidated Holocene sediments), the stronger the groundshaking. The sediment wetness at the time the earthquake occurs amplifies the potential for earthquake induced damage. However, such an effect is not unquestionably supported by all specialists in the field. Information on sediment wetness is presented in publications as a parameter that expresses the depth to perched water or to the regional water table; the shallower the depth to water, the stronger the shaking.

Liquefaction

During strong earthquakes, unconsolidated and water-saturated sediments may experience bulk densification leading to an instantaneous rise in sediment pore-water pressure. During this extremely short period, the load within the soil mass is carried by the water, and the soil acquires the mechanical consistency of a suspension; for a short, but critical period, the soil becomes fluid. This process of consistency change from solid to fluid is called liquefaction.

When a soil beneath a structure liquefies, the structure loses its integrity with extremely dangerous consequences. Although liquefaction is always the result of an increase in pore-water pressure, it manifests in several ways. Lateral spreading occurs when large, superficial, and otherwise stable earthen blocks float over



liquefied, unstable ground. Such events are associated with slightly tilted surfaces, generating considerable damage to utility lines, pipes, etc. Flow failure occurring on slopes larger than 5 percent (1 to 20 V:H) represents a liquefaction mode in which the whole surface soil moves down slope. Ground oscillation is essentially a lateral spread occurring on areas of flat topography. Loss of bearing strength under structures is the most potentially damaging liquefaction mode because it leads directly to losses in the strength of the structure's foundation and thus great danger for people and property.

Because liquefaction is a particular expression of groundshaking, the potential of which was previously indicated to be a function of site geology and earth-engineering characteristics, the liquefaction potential is also assessed based on geologic and site-specific geotechnical data. The geologic data that determine the liquefaction opportunity (distinctly different from potential) are mainly earthquake related; they are the existence of active faults, their characteristic (average) strain if known, and the recurrence of large earthquakes on such faults. The earthquake magnitude is an all-important geologic parameter when assessing liquefaction potential because it is strongly correlated with shaking amplitude and duration, both of which have been found to trigger liquefaction in susceptible soils. This element of susceptibility, discussed in the next paragraphs, combined with the liquefaction opportunity previously mentioned, leads to the estimation of the liquefaction potential at any particular site.

Liquefaction susceptibility is based on both geologic and geotechnical data. The geologic data refer to the age of the sediment and the depositional process leading to sediment formation. Thus, river-channels and flood-plains are considered most susceptible to liquefaction, while alluvial fans have a lower susceptibility. From the standpoint of sediment age it is also accepted that, in the Los Angeles area, latest Holocene (deposited in the last 1,000 years), Holocene (deposited within the last 11,000 years), and late-middle Pleistocene (deposits formed in the last 1 million years), are associated with distinctly different susceptibilities to liquefaction: the young Holocene is characterized by a very high and the Pleistocene by a minimal susceptibility to liquefaction. The sediment deposition period is important because aging leads to at least a partial cementation of the earth matrix and thus an increase in the geologic consolidation. Generally, the older the sediment, the higher the likelihood that the sediment is consolidated, or even over-consolidated, which implies that soils are of high strength and are therefore not liquefiable.



Another important element that has appreciable impact on the susceptibility to liquefaction is the hydrologic condition of the site, namely the existence of, and the depth to, a body of groundwater. This is significant because the liquefaction event can take place only in water-saturated soil. Thus, it is accepted that groundwater shallower than 30 feet corresponds to conditions of high and very high susceptibilities, while deeper water represents low and very low susceptibilities.

The geotechnical characteristics that dramatically influence liquefaction behavior are the particle-size characteristics, gradation, confining pressure, and relative density of the deposit. The particle shape, the general fabric, and the principal stress ratio in the earth mass are potentially important characteristics. Unlike general geologic characteristics, geotechnical investigation leading to detailed soil engineering characterization must be done on a site-specific basis. The liquefaction risk can only be mitigated through designs based on meticulous geotechnical site investigation. Only following such an investigation one can state that “. . . the environments that favor the occurrence of liquefaction can be delineated with reasonable precision . . .”

The State Division of Mines and Geology Seismic Hazards Maps for the Seal Beach area show areas where historically liquefaction occurred *or* where geological, geotechnical, and groundwater conditions point to a potential for the occurrence of a liquefaction event (refer to Figure S-6).

Landslides

The Federal Emergency Management Agency (FEMA) defines a *landslide* as:

“Downward and outward movement of slope forming materials composed of natural rock, soils, artificial fills, or combinations of these materials. The moving mass may be preceded by any of three principal types of movement: falling, sliding, or flowing or by their combinations.”

Although the term *landslide* is generally assumed to mean any slide of rock or soil down a hill, the term actually encompasses a number of different types of earth movements. Lateral shifts of level ground or rotational movement of land triggered by heavy saturation, liquefaction, or earthquakes are also classified as landslides. An ancient landslide can lie dormant for years with imperceptible creep and gradual consolidation and settlement.



Gradually the shear strength of the old slide mass is overcome and reactivation occurs as a slow or rapid movement.

The occurrence of landslides is a part of the continuous, natural process of the downhill movement of soil, rock, and rock debris. The speed at which this earth material moves down slope can range from imperceptible creep of soil to sudden mass movements of an entire hillside. The size of a landslide can range from several square feet in area to several square miles. Slide thickness may range from less than a foot to several hundred feet. It is important to remember that the complex arrangement of earth and rock units sometimes results in one piece of land having a sound and stable geological foundation while another piece immediately adjacent, perhaps on the same lot, may be entirely different and potentially unstable. It is therefore necessary to study each development proposal individually.

Landslide Hazard Reduction

Damage due to landslides can be reduced through avoidance, removal, or permanent stabilization. The first step is to recognize the existence of an ancient landslide or the probability of a future landslide. This is accomplished through detailed geologic mapping, trenching, drilling, and photo interpretation of surface geologic conditions. Ancient landslides located in undisturbed and undeveloped areas are the easiest to detect through the use of photo interpretation. Detection in developed areas may be much more difficult because the characteristic features of landslides' lobe-like forms and track-like hollows are often obscured. Probable future slides can often be anticipated in areas where other landsliding has already taken place. Hillsides covered with deep soils or that are heavily saturated with groundwater may be potential landslide areas. Additionally, landslide possibilities are greatly increased where the bedrock and hill slope directions tend to be the same.

In order to determine the precise origin of the topographic form, it is necessary to conduct supplementary subsurface explorations. Once the configuration of a potentially active landslide is known by subsurface investigation, the threshold values of failure can be calculated. A value of 1.0 represents equilibrium, where the forces resisting failure or movement equal those forces that cause failure. A value below 1.0 would indicate where a geological failure (i.e., landslide) is expected to occur. The present minimum accepted level of safety value is 1.5, which means that the geological feature is 50% stronger than equilibrium or the forces promoting failure.



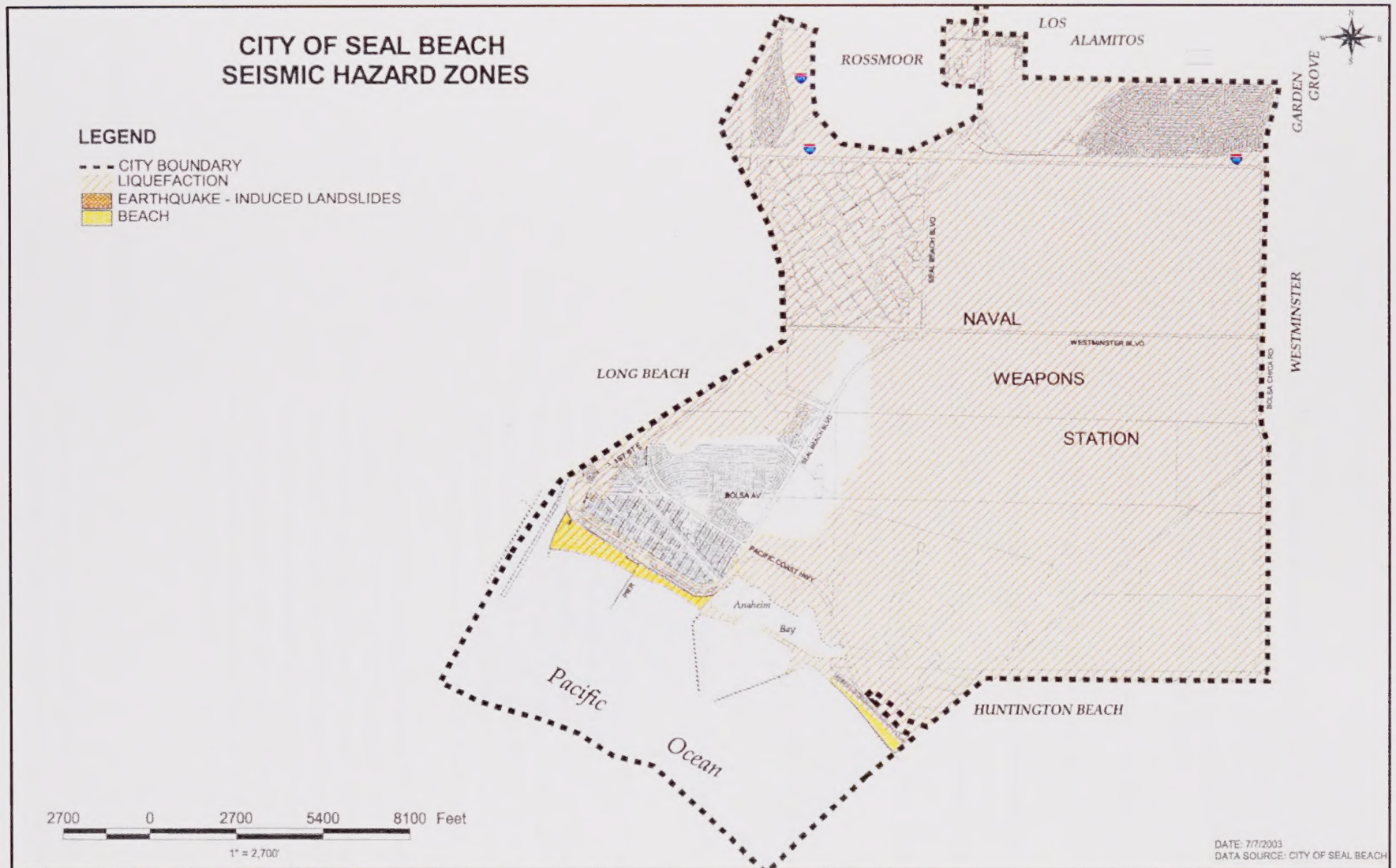


Figure S-6 - Seismic Hazards/Liquefaction Zones



When an area is recognized as a potentially hazardous landslide area, future development can be designed to take this into consideration and existing development can take mitigating actions to reduce potential hazards to an acceptable level. Several methods of minimizing landslide risks include:

- 1) Leaving hazardous areas undeveloped.
- 2) Removing unstable slope material.
- 3) Engineering grading prior to construction.
- 4) Providing for roof, surface, and subsurface drainage.
- 5) Constructing retaining walls or other barriers to buttress ancient slides.
- 6) Reducing the driving forces acting on the slope by reducing the slope angle or the weight of objects placed on the slope.
- 7) Planting drought-resistant vegetation with deep, strong root systems.

Although these techniques represent effective mitigation to protect development from geologic instability, they cannot ultimately guarantee control over the forces of nature. Diligent investigation, analysis and reporting is essential in making informed land use decisions, but should not be viewed as being absolutely definitive because extreme events, such as unusually heavy precipitation or severe seismic events, are not predictable.

Within Seal Beach there are few areas where landsliding would be a concern. The steep slope areas adjacent to Landing Hill would be the primary areas of concern. The State Division of Mines and Geology Seismic Hazard Maps for the Seal Beach area show areas where landslide movement previously occurred *or* the topographic, geological, geotechnical, and subsurface water conditions point to a potential for earthquake-induced landslides to occur (refer to Figure S-6 on page 51).

Tsunamis and Seiches

Tsunamis are seismic sea waves generated by large submarine earthquakes, volcanic eruptions, or large submarine landslides.



Seiches are stationary oscillations of enclosed or partly enclosed bodies of water caused by landslides, sudden changes in atmospheric and wind pressure or earthquakes. Seismically induced seiches are not considered a potential hazard. The tsunami hazard is considered to be low for the elevations above the principal sea bluff in Seal Beach. Areas on the beach or below the sea bluff are considered to have a moderate tsunamic hazard, depending on tidal conditions and their elevation with respect to sea level.

The Army Corps of Engineers has estimated a 7- to 8-foot potential run-up for the coastal area. Assuming a coincidental highest tide, areas below the 16- to 17-foot contour level could be inundated by a tsunami. The chance of this occurring appears to be low based on existing data; but if an earthquake happened along the Newport-Inglewood fault, a tsunami of a much higher inundation level could be expected.

Policies

- 3A. Require a soils and geology report to be prepared and filed for all development projects as specified in the City's Municipal Code.
- 3B. Require geological surveys to be prepared after onsite borings or subsurface explorations at the time subdivisions are submitted to the City for approval.
- 3C. Require supervision by a state licensed soils engineer for grading operations which require a grading permit.
- 3D. Maintain and enforce protection measures which address control of runoff and erosion by vegetation management, control of access, and site planning for new development and major remodels, including directing runoff to the street and compliance with setbacks.
- 3E. Restrict development projects that will cause hazardous geologic conditions or that will expose existing developments to an unacceptable level of risk until the causative factors are mitigated.
- 3F. Require independent review of the geologic and soils reports as appropriate.



- 3G. File and reference copies of pertinent site-specific geologic information and index the information in the City's Geographic Information System.
- 3H. Provide ongoing maintenance and inspection of all public drainage facilities and eliminate or mitigate uncontrolled storm drain flow on hillsides or bluffs.
- 3I. Require the use of drought-resistant vegetation with deep root systems where appropriate for safety reasons in new development projects to reduce the potential for over-irrigation. Encourage the use of drought-resistant vegetation throughout the City through public education efforts.
- 3J. Maintain the present City practice of adopting the latest edition of the Uniform Building Code (as amended and published by the International Conference of Building Officials at approximate three-year intervals) because it incorporates the latest accepted standards for seismic design that reflect advances in technology and understanding of hazards.
- 3K. Prohibit the location of new essential facilities such as hospitals, fire and police stations, emergency centers and water tanks in geologically hazardous areas unless it is determined that there is no feasible alternative and the hazard is adequately mitigated.
- 3L. Require that earthquake survival and efficient post-disaster functioning be a primary concern in the siting, design and construction standards for new essential facilities.
- 3M. Evaluate the long-term risks and their associated costs versus the costs of relocation when major improvements to existing essential facilities are proposed and the facilities are located in known hazardous areas. Relocate the facility if the analysis indicates this is more cost effective in the long term.
- 3N. Determine the liquefaction potential of a site prior to development and require that specific measures be taken, as necessary, to reduce damage in an earthquake.
- 3O. Promote the collection of relevant studies on fault location and history of fault displacement and liquefaction for future refinement of the geological information within and around the City.



- 3P. Identify the effects of the most probable seismic event (Modified Mercalli intensity value VIII or more) on the infrastructure within the City.
- 3Q. Incorporate information on the probable seismic event impacts on infrastructure into the development of capital improvement programs so as to upgrade the survivability of the infrastructure.
- 3R. Work with governmental agencies (i.e., Caltrans and Water Districts) and the public utility companies to identify and promote effective mitigation of the effects of the most probable seismic event on the infrastructure which supports the City of Seal Beach.
- 3S. Prepare a Geological Hazards Map based on a study of the geological formations and hazards of the entire City, employing a format compatible with the City's GIS mapping system.
- 3T. Integrate the latest information about earthquake survivability into the City's public safety education program. Encourage the retrofitting of every home within Seal Beach for earthquake survival, especially in the area of adequate anchoring (tie-down) of the homes to their foundations.



Topic 4: Fire Hazards

California experiences large, destructive wildland fires almost every year. In October and early November of 1993, 26 major fires burned more than 200,000 acres in Southern California. The potential for a severe wildfire to occur is increased when dense vegetation growth and large accumulations of dead plant material are present. Weather conditions and steep terrain also increase the hazardous wildfire potential; however, these conditions do not cause wildfires. Human error, arson, high-voltage lines, vehicles, and lightning are the primary causes of wildfires. Moreover, an expanding population seeking living space and recreation in the fire hazardous wildland contributes to the problem. The City of Seal Beach, typifying the more urban conditions throughout the State, does not face a serious threat of wildland fires.

Structural fires, which typically involve only a single structure, are the most common fires that are battled routinely by local fire departments. Some of the common causes of structural fires are arson, electrical problems, combustibles too close to heat sources, unattended cooking, and misuse of smoking materials. The combination of building materials, density, fire flow, hydrant location, response time of emergency equipment and natural conditions can exacerbate potential structural fire disasters.

Orange County Fire Authority

The Orange County Fire Authority contracts with the City to provide needed fire, emergency medical and rescue services. The Fire Authority also works with the City's Planning Department and developers on construction projects that impact fire protection services from the projects inception all the way through to approval.

Fire Hazard Severity Classification System

There are three levels of fire hazard zones within wildland of Orange County. These zones are adapted from a fire hazard severity classification system for California wildland developed by the State of California Department of Forestry. These classes are moderate, high and extreme fire hazard. This classification util-



izes field investigation and present topographical information to define the fire hazard classes based upon three criteria: (1) Fuel Loading; (2) Fire Weather; and (3) Slope.

Fuel-Loading includes three classes. Light fuels represent flammable grass and annual herbs. The majority of Seal Beach fits in this category. Most of these have been altered by man's actions: urban development, cattle grazing, fuel breaks, etc. Medium fuels include brush and other perennial shrubs less than six feet in height with a crown density of 20 percent or more. This comprises a very small area in Seal Beach, primarily at the Hellman Ranch property. Heavy fuels are the heavier brush species, woodland types and timber types over six feet in height with a crown density of 20 percent or more. In Seal Beach these areas are predominantly defined by stands of *Eucalyptus globulus* (Blue Gum) located on the Bixby Old Ranch Golf Course and at Gum Grove Park.

Fire Weather includes three classes. Each class is related to the frequency of critical fire weather days occurring in each of the State's Fire Danger Rating Areas over an eight to ten year period (Fire Danger Rating Areas are wildland geographical areas having similar climate.). The Low Class (Class 1), includes all those Fire Danger Rating Areas which have experienced fire weather in the very high or extreme ranges on an annual average of less than one day; the High Class (Class 2), has an annual average of 1 to 9.5 days; and the Extreme Class (Class 3), has an annual average of more than 9.5 days. Each United States Geological Survey topographic map in the State is keyed to one of the Fire Danger Rating Areas and assigned that area's critical fire weather frequency classification. Based on the above methodology, Seal Beach has been classified as a Class 1 Fire Danger Area.

Slope is divided into four classes as part of the Fire Hazard Severity Classification Scale. The following classes are based on the slope: 0-9.9 percent, 10 to 19.9 percent, 20 to 39.9 percent and over 40 percent. Slope is recognized as having an effect on fire behavior similar to the effect of wind (i.e., an increase in slope produces an increase in the rate of fire spread). The system therefore assigns values to slope, which modify the various fire danger indices accordingly. Seal Beach falls within the 0-9.9 percent classification.

Each class of fuel loading, fire weather, and slope is assigned a severity factor value. The values are multiplied in a matrix to produce a Fire Hazard Severity Scale. This scale is relative, that is, a fire occurring in an area determined to represent a moderate



fire hazard will be less severe than a fire occurring in an area representing an extreme fire hazard. It is important to note that this information represents a synthesis and necessary generalization of more detailed information, and thus is not an exhaustive description of the vegetation, slope patterns, etc., that exist. Rather, it represents the interpretation/generalization of available information as it relates to suitability of development based on fire safety.

Wildland Fire Hazard Potential

Several factors affect the hazard potential one can expect from a wildland fire in any given area. These factors include topography, vegetation, climate, development patterns, access, and fire fighting capabilities to the area. All of the factors combined to contribute to the devastating wildfire in Laguna Beach on October 27, 1993, which engulfed 16,682 acres, destroyed 366 homes (286 homes within the City limits) and damaged 642 homes.

Topography

The topography of Seal Beach can best be described as being flat with a single high elevation point of Landing Hill. This topographical condition has not much effect on wildland fire behavior and on the ability of fire fighters and their equipment to take action to suppress those fires. This topography also allows for a dispersal of air flow, thereby not creating extremely erratic winds.

Vegetation

Along with the local topography, marine influences play a significant role in shaping the fire hazard potential for the area. The topography and soils encountered within the City of Seal Beach, along with climatic conditions, predominantly influenced by the Pacific Ocean, and the urbanization of the City, have contributed to the plant environment found in Seal Beach. The urbanization of the area, with the exception of the Seal Beach Naval Weapons Station, has eliminated most native plant regimes within the community. The general vegetative characteristic of the City of Seal Beach is of typical urban landscaping, with primary ground cover being devoted to decorative grass and landscape species.



Gum Grove Park is an urban forest area of approximately 14.9 acres located north of Pacific Coast Highway and west of Seal Beach Boulevard. The primary vegetative species of the park is eucalyptus trees, which were introduced in the 1920s.

Climate

Climate is the single most important contributing factor to the fire problem. The Santa Ana winds are a phenomenon caused by very dry and warm air originating from high-pressure systems over California, Utah, and Nevada. Winds can reach 70+ miles per hour and have a humidity of near zero. Precipitation (its annual total, seasonal distribution, and storm intensity) has further effects on the moisture content of dead and living vegetation and hence has important effects on fire ignition and behavior potential. Precipitation in Orange County averages between 9 and 15 inches per year and generally falls during the period from November to April. Most of the large fires occur during the fall, following abnormally wet winters.

The wind is a separate factor once a large brushfire has begun. It drives the fire before it, increasing the rate of spread downwind in proportion to its velocity. Passing through and beyond the fire, it then becomes a super-heated current of air that can move downhill rapidly and uphill many times faster, especially when funneled by the shape of gullies and canyons. Where the wind and topography combine to direct such an effect, the heat can be so intense that temperatures may reach 2,400 to 2,600 degrees. A strong wind can also carry burning debris, igniting many spot fires, oftentimes from one-half mile to a mile downwind.

If enough area is ablaze simultaneously, the updraft from rising heat can generate a vortex or tornado that can lift up and propel firebrands over a wide area outside the original fire, which can then rapidly expand. The updraft can generate an unbalanced condition on uneven terrain, which *presses* the flames against any nearby steep slopes, igniting them. Therefore, even in the absence of any prevailing wind, the fire can generate fire whirls that may move uphill with great rapidity. Auto-generation effects can arise because of the fire itself, if it is sufficiently large. These are usually referred to collectively as a firestorm.



Development Patterns

Development patterns can have considerable effect on fire ignition and rate of spread. This is especially true in the open space interface areas where the presence of man near highly flammable brush creates a critical situation.

Building design and material, small lots, and the resulting proximity of adjacent structures compound the potential impacts of structural fire. When these combine with the threats of brush fires, fire hazards reach critical concerns. The Surfside and the Seal Beach Trailer Park neighborhoods have been identified as having critical development patterns with respect to fire. The development patterns of these two areas of the City affect the potential for fire hazard; high-intensity development, small setbacks, and narrow roads all work to reduce the effectiveness of fire fighting efforts. In addition, small setbacks and flammable building materials, especially within close proximity to similar structures, tend to increase the propensity for fire and accelerate its spread. In recognition of these issues, the City of Seal Beach has required the provision of automatic sprinkler systems in all new residential development in Surfside and in all new two-story cabanas in the Seal Beach Trailer Park for many years.

The most significant factor determining overall fire risk is human proximity. The human element is often responsible for the ignition of major structural fires, as evidenced by the abundance and frequency of fires in the vicinity of residential neighborhoods. Unsupervised children, wood burning fireplaces, increased recreational use of the wildlands (off-road vehicles), and arson all contribute to the largest single source of fires – man.

Access

Any discussion of access must simultaneously be concerned with egress, as well as ingress. Chapter 21 of the Seal Beach Municipal Code “Subdivisions” sets forth standards for roadway development. As a result of early lifestyles and concomitant developmental patterns, numerous neighborhoods are currently served by roads that do not meet current design standards.

Upgrading these roads to conformity is not, in certain areas, feasible or desirable. For the purposes of hazard identification, the Fire Authority has established a minimum unobstructed roadway width of 20 feet.



For a variety of reasons, streets that fail to meet fire department minimum requirements for access can restrict emergency mobility in the neighborhoods they serve. Among other reasons for road width inadequacy are subdivisions approved in the early 1900s, when roadways were by nature much narrower than current standards, lack of available off-street parking, and insufficient fire department turn-arounds. Due to the lot depths in the Old Town portion of the City, the Fire Authority would be able to access a restricted access area from an adjoining street. Situations are untenable where personnel and equipment may be trapped or unable to reach the fire or flee from its path. The City Council will direct the Fire Authority to identify those areas with only a single access to and from the community, and to assist in developing alternative access points. By providing a second access roadway, movement of fire apparatus can be deployed as evacuation is taking place. Deployment of fire fighting equipment is critical to successful fire defense of any community.

Fire Fighting Capabilities

The Fire Authority provides fire protection and emergency services for the City. Four of the Fire Authority's stations serve Seal Beach; two are located within the City and two are located within the Cities of Sunset Beach and Los Alamitos. Stations 44 (718 Central Avenue) and 48 (3131 Beverly Manor Road) are located within the City. Station 2 is located at 3642 Green Avenue in the City of Los Alamitos, and Station 3 is located at 16861 12th Street in the City of Sunset Beach. The Fire Authority has automatic aid agreements with the Cities of Long Beach, Garden Grove, and Huntington Beach for additional units when needed or when closer.

Average emergency and non-emergency response times are approximately 3 to 5 minutes for Stations 44 and 48. The response times for Stations 2 and 3 vary from 5 to 12 minutes, depending on the location of the emergency response to the responding station.

Station 44 has one paramedic assessment engine, one paid call fire fighter engine with three personnel, and one reserve squad (personnel varies), and Station 48 has one engine with three personnel and one paramedic van with two personnel. Station 2 has one paramedic assessment engine with three personnel and one reserve squad (personnel varies), and Station 3 has one reserve engine (personnel varies) and one squad (personnel varies).



A four-year average (1997-2001) reveals that the Fire Authority responded to approximately 200 calls per year. Of these 200 calls, 77 were actual structure fires and the balance were vehicle and other types of fires.

Local Programs and Legislation

As experienced by the City of Seal Beach in the January 1995 floods, the Mutual Aid system works very well. However, mitigation measures must be implemented to ensure that the vulnerability to structural fires is reduced. The success of increasing public safety regarding fire hazards relies on systematically fighting the threat of fire before the fire occurs through a host of programs.

These programs include systematic amendments to the building codes and fire codes, developing guidelines for the placement and location of fire hydrants, developing landscape guidelines, defensible space management on a city-wide basis, and analyzing the water system for fire fighting use.

Building Codes and Landscaping Guidelines

The Fire-Zone Mapping Bill (Bates Bill, AB 337) requires the identification of fire zones within the 15 most vulnerable counties within California based on fuel load, weather, slopes and housing density. No portion of the City of Seal Beach is located within a Very High Fire Hazard Severity Zone.

Wildland fires and structural fires spread by Santa Ana winds have demonstrated the need for fire-resistive building construction requirements that are more restrictive than the provisions in the Uniform Building Codes (UBC). The City of Seal Beach has adopted special building and fire code provisions that exceed the UBC requirements.

The City should also develop, implement, and maintain a community and neighborhood hazard identification and abatement program to support defensible space management. Defensible space is the private property, usually landscaped, which is managed in such a manner that the ornamentals or native plants do not increase the fuel loading in relation to structures.



Planning and Maintenance of Outdoor Areas Adjacent to Homes

While fuel modification deals with the treatment of the urban/wildlands interface, the concept of defensible space applies to all areas of the City. Creation of defensible space means the arrangement of access on the property for ease of fire fighting and maintenance of properties to minimize buildup of fuel that could ignite and cause fire to spread to the home.

Better access for fire fighting should include the following:

- providing safe walkways around all sides of the house; and keeping side yards unobstructed and free of flammable stored items.

Maintenance for fire safety should include the following:

- thinning of planting to remove dead wood and to reduce build-up of branches and foliage;
- removal of dried leaves and grasses, dead limbs and twigs; and chipping, composting and mulching planting areas where feasible;
- spacing and pruning of trees and shrubs to avoid continuous canopies and “fuel ladders” from ground to canopy;
- removal of plants growing up under eaves;
- pruning of tree branches and shrubs within ten feet of a chimney;
- removal of leaves, pine needles and debris from roofs and rain gutters;
- removal of combustible stored material and debris from around and under the house and decks; and
- stacking of firewood as far away from the home as possible.

When planning the landscape of a home, access for fire fighting should be considered in the design. Maintenance considerations outlined above should be considered in the choice and placement of plantings. When located adjacent to a natural vegetation area, construction of combustible structures – fences, decks, and gazebos – should be minimized. Wood decks with open areas underneath should be enclosed to reduce potential for ignition from fires below.



Planting and Fire-wise Plant Choices

While much has been written and suggested regarding fire-resistant or fire-retardant plantings, the 1993 Laguna Beach fires demonstrated that any plant will burn. However, reasonable planting selections combined with sound arrangement and spacing and good maintenance can improve the chance that a structure will survive a wildlands/fire-storm fire. Lists of suggested and not-recommended plants for the wildlands interface zone have been prepared by many public agencies, including the Orange County Task Force, County of Los Angeles Fire Department, and the City of Oakland, as well as by the garden publications. The County of Orange "Report of the Wildland/Urban Interface Task Force," July 1994, also includes a recommended plant list for fuel modification zones. A comparison of these often conflicting lists reveals certain criteria for fire-wise planting as follows:

- Low fuel volume;
- High moisture content;
- High salt content;
- Low aromatic oil content;
- Low heat value;
- Minimal production of dry litter; and
- Suited to the site and climatic conditions so that plants will be healthy.

Consistently "not recommended" plants include conifers (pines, cypress, cedar, and junipers). Also "not recommended" are acacia, bougainvillea, and ornamental grasses. Eucalyptus is "not recommended" on many lists because of the high aromatic oil content and the tendency of some species to produce high amounts of dry litter. The use of "not recommended" plants should be avoided adjacent to natural vegetation areas.

Because of eucalyptus's importance in the landscape of Seal Beach, it is important to look at this genus in more detail. There are over 700 species of eucalyptus, and they vary greatly in their size, fuel volume and litter production. An unmaintained blue gum, for example, has a great deal more flammable material in its shedding bark, leaf litter, and branches than a lemon gum. Many of the lemon gums survived the 1993 Laguna Beach fire with some charred trunks and loss of foliage. The County of Orange "Report of the Wildland/Urban Interface Task Force" did not single out or condemn eucalyptus. It emphasized irrigation, thinning and spacing as keys to any fire-safe landscape. The City emphasizes the importance of eucalyptus groves by ordi-



nance provisions. Gum Grove Park is a public nature park and comprises the major stand of Eucalyptus trees within the City. The City has been actively involved in establishing a program to improve the health of the grove and increase the safety of the grove from a fire protection standpoint.

Irrigation, thinning and clean-up to keep the amount of litter and dried materials low, arrangement and spacing to avoid continuous canopies, and keeping foliage away from structures are as important as the type of plants chosen.

Weed Abatement

The City of Seal Beach has had a weed abatement program for over 30 years. Property owners are notified when property they own is determined to be a weed nuisance. They then have the option of either abating this problem themselves or having the City do it and bill them for services rendered. In recent years the City has had this work performed through contract services. This program addresses only weed abatement and generally does not address native plant material that may be growing adjacent to an urbanized area.

Water System

Approximately 75 percent of the water used in the City is local groundwater, with the additional 25 percent provided by the Metropolitan Water District (MWD). The City currently has three wells with a total pumping capacity of 11.2 million gallons of water per day (mgd). However, delivery capacity is limited to 5 mgd by the capacity of the City's reservoirs. The sources of MWD's water include northern California and the Colorado River. The City currently has an average daily water demand of 2.5 mgd and a maximum daily demand of 4.1 mgd.

The amount of water required for extinguishing a single structure fire can be calculated by using a complex formula that takes into account the building type, building construction materials, building area, material types stored inside the building, and the surrounding terrain. A fire similar in nature to the October 1993 Laguna Beach firestorm would tax the water supply and delivery system substantially beyond its design capability. In order to maximize the fire safety system within the City, the City should continue to work with the City Water Department, in conjunc-



tion with the Fire Authority, to analyze aspects of the water system that would require improvement for fire fighting use.

Policies

- 4A. Ensure that adequate facilities and fire service personnel are maintained based on population, fire hazards in and around the City, and a performance standard of an average total reflex time of seven minutes or less.
- 4B. Educate and inform the public on fire safety, especially regarding landscaping installation and maintenance in urban areas, to further protect the community and the environment from unnecessary fire hazards.
- 4C. Enhance the ability of all structures within the City to resist wildland and structural fires through ongoing, appropriate and cost-effective changes to the City's Zoning, Building and Fire Codes and standards.
- 4D. Work with the Water Department and the Orange County Fire Authority to analyze the supply and delivery aspect of the water system for fire fighting use to help identify and correct deficiencies.
- 4E. Develop an early warning system of Santa Ana wind fire danger to alert the public of possible precautions or safety measures that may be taken during those critical times.
- 4F. As a condition of new development, require private responsibility for development and maintenance of necessary new fire flow water lines and hydrants in accordance with the recommendations of the Orange County Fire Authority.
- 4G. Encourage property owners to create defensible space surrounding their homes, including providing access for firefighters, maintaining plantings and outdoor areas, and minimizing combustible structures.
- 4H. Encourage property owners to consider "fire-wise" planting and the use of fire-resistant building materials, especially in landscaped and developed areas adjacent to Gum Grove Park.



Topic 5: Flood Hazards

Historically, flooding has been beneficial to agricultural soil, wildlife and the general ecological balance. In the unaltered state, water systems have considerable built-in capacity for detaining storm waters that would otherwise surge too rapidly downstream and into estuarine basins. Hydrologists emphasize that, along natural watercourses, flooding is a routine process. Flooding in an urban setting can also be viewed as a natural hazard.

Virtually all stages of the natural hydrologic cycle, including flooding, have been significantly altered by human intervention. Changes in land use have profound effects on runoff and erosion on the land surface. As vegetation is removed and soil is exposed during construction, erosion rates may increase significantly. The creation of impermeable surfaces that accompany urbanization increases and concentrates runoff, leading to a greater incidence of flooding.

A flood may be defined as a temporary rise in stream flow that results in water overtopping its banks and inundating areas adjacent to the channel not normally covered with water. The low-land area adjacent to the stream that is subject to periodic inundation by floodwater is known as the floodplain.

The magnitude of a flood is measured in terms of its peak discharge, which is the maximum volume of water (in cubic feet per second) passing a point along the channel. Floods, however, are usually referred to in terms of their frequency of occurrence. For example, the 100 year flood is a flood magnitude which has a 1% chance of being equaled or exceeded in any given year. There is a certain element of risk involved using this type of designation because the prediction of a flood of a particular magnitude is based on probability and an element of chance is involved. According to statistical averages, a 25-year flood should occur on the average once every 25 years. However, two 25-year floods could conceivably occur in any one year. For planning purposes the flood magnitude most often used in delineating floodplain boundaries is the 100-year flood. This flood is also referred to as the *intermediate regional* or *baseflood*.

The climate of Seal Beach is typically Mediterranean, characterized by warm, dry summers and cool, rainy and foggy winters.



The average annual rainfall is 13 inches. Over 90% of this rainfall occurs between late October and early April.

Flooding is a direct response to the amount, distribution, and intensity of precipitation. Most flooding damage is brought by sudden deluges of already soaked ground, or in the case of the coastal areas of the city, the combination of a storm surge with a high tide. Storms that combine high total rainfall, long duration, and high daily maxima, as in the 1995 storm, are the most destructive. Heavy runoff and accelerated erosion are associated with this type of short period torrential rain, as well as with storms of longer duration and greater totals.

Historically, floods causing significant damage occurred in Seal Beach in 1937, 1938, 1941, 1966, 1969, 1978, 1983 and 1995. Flood potential exists in the form of temporary floods related to winter rains and wave run-up. Most of the flood activity is isolated along the various drainage channels within the City or the immediate coastal area. Most flood conditions in Seal Beach are short lived in nature due to the limited size of the available watershed and the presence of drainage improvements. Damage resulting from flooding in Seal Beach is more inundative than erosive in nature.

In general, three separate and distinct types of inundation are known to exist in Seal Beach. Flood inundation hazards are those associated with major atmospheric events that result in inundation of developed areas, due to overflow of nearby stream courses, or inadequacies in local storm drain facilities. Facility inundation hazards are those associated with downstream inundation that would occur given a major structural failure in a nearby impoundment. Such failures would most likely be caused by geologic phenomena including seismic events and slope instability. The third inundation hazard is storm surge run-up that may occur during a high tide.

Sections of Seal Beach are subject to flooding due to *wave run-up*. This type of flooding is typically caused by large swells produced by storms at sea occurring at high tide. Wave run-up was especially damaging to the residences located on Seal Way between the Seal Beach Pier and the Navy Jetty, and at Surfside, in 1984. The water and debris left by the waves caused no damage to the commercial area; however, damage to the interior of homes near the beach area was substantial.

In north Orange County, increased urban development is perhaps the most serious change in drainage basin and floodplain



characteristics that can influence the magnitude and frequency of flooding. Urbanization often leads to a greater percentage of impervious surfaces, which increases the total volume of storm runoff by decreasing the amount of water that infiltrates into the ground. Development can also result in placing artificial fill and other objects in the floodplain.

To protect development from the impacts of flooding, stream channels are often channelized (e.g., straightened, lined) to move the water off the land more efficiently. However, when water emerges from the improved section of stream channel, it is often delivered to the unchannelized downstream section at rates and velocities that the natural section of stream is not capable of carrying. Piecemeal channelization efforts often exacerbate the flooding potential downstream. Therefore, it is important that flood hazard reduction operations be comprehensive, well planned programs.

Local Setting

A “Master Plan of Drainage” was prepared for the City of Seal Beach in February 1999. This document identified the local network of existing flood control facilities and the condition and capacity of each one. The existing data was then combined with the estimated contributions from future anticipated land use to determine the total storm runoff for the City. The document then outlined a prioritized list of system improvements and a basis for establishing funding mechanisms. To continue to be effective, the Plan should be periodically updated to reflect new hydrologic modeling techniques, revised rainfall runoff data, changed land use and development patterns, and current costs.

The effects of storm water runoff in the City of Seal Beach are typical of problems in inland areas, where run off from several tributary areas combines to inundate low-elevation areas, for the non-coastal areas of the City. River, stream, and drainage channel channelization involves straightening the natural meanders, clearing the banks and widening and deepening the channel. It is undertaken to assist in flood control and to increase developable land. Channelization lowers the level of the river or stream and the riparian water table, increases the rate of surface run off, increases the stream flow rate, enhances bank and bottom erosion, and transports a heavier sediment load than the unchannelized stream. Channelization also affects the beach replenishment process which is discussed in Topic 6, Shoreline Protection.



The San Gabriel River is a major watercourse adjacent to the western boundary of the City. The headwaters commence in the San Gabriel Mountains, approximately 30 miles from the outlet into the Pacific Ocean, adjacent to the City of Seal Beach. The drainage area of the San Gabriel River and its tributaries is about 679 square miles.

Development in the floodplain of the San Gabriel River ranges from sparse at the headwaters in the mountains to dense along portions of the river channel located on the alluvial plains. The floodplain in this area has been completely developed. Residential and light industrial development is predominant in the area between the San Bernardino Freeway and the Pacific Ocean.

Flood Protection Measures

As part of the National Flood Insurance Program, a report was prepared which delineated flood-prone areas in Seal Beach. The generation of this report and accompanying maps help illustrate where development has been permitted into the flood zones, creating a potentially hazardous condition during 100-year storms (see Figure S-7).

A majority of the City's storm drain infrastructure, unless otherwise noted, is designed for the 25-year flood. This design standard reflects the standards in use during the time of the construction of the major storm drain systems within the City. It would, therefore, be inadequate for the more recent, and generally accepted, standard of a 100-year flood.

The major storm drain facility located within the City is the Los Alamitos Retarding Basin, owned and operated by the County of Orange. This facility is located south of Westminster Avenue, west of Seal Beach Boulevard and adjacent to the Haynes Cooling Channel. The Retarding Basin serves a drainage area of approximately 5,420 acres, generally located east of the San Gabriel River and Coyote Creek Channel, south of Carbon Creek Channel, west of Bolsa Chica Channel, and north of Westminster Avenue. The drainage area includes portions of Seal Beach, Los Alamitos, Cypress, and the unincorporated area of Rossmore. The Retarding Basin was built in 1958 by the Orange County Flood Control District. The basin has a storage capacity of about 200 acre feet and four pumps discharge storm waters into the San Gabriel River. Los Alamitos Channel, which drains directly into the basin, was designed in 1957 for a discharge of 1,460 cubic feet per second (cfs) and is inadequate to



carry the 100-year discharge of 2,650 cfs. The existing pumping station was designed for a discharge of 450 cfs, comparable to a 25-year storm design, which is inadequate to hold a maximum water surface in the basin of +1.0 elevation necessary to prevent upstream flooding. The County of Orange recognizes the deficiency of this drainage system, and is currently investigating ways to improve the system to provide for increased storm drainage protection to the drainage basin. As future plans are finalized, the City will review this discussion as part of its bi-annual review of the Safety Element.

Of the numerous other drainage facilities throughout the City of Seal Beach, most drain areas are of insignificant size or have the capacity to pass the 25-year storm. The concept of 100- year protection remains desirable, but may not be achievable in the foreseeable future due to financial factors. Therefore, the concept of providing reasonable level of drainage control to meet the 10-, 25-, or 50-year design frequency should be considered while waiting for the ultimate, 100-year design to be designed and funded. Drainage structures that do not meet the standards of the 25-year storm and/or drain areas of sufficient size will be noted in drainage studies.

In 1995 the City of Seal Beach revised and updated its “Floodplain Overlay District” provisions in the Code of the City of Seal Beach to promote sound land use and floodplain development standards pursuant to the rules and regulation of the Federal Insurance Administration and Federal Emergency Management Agency. Areas of special flood hazard have been identified by the Federal Emergency Management Agency on the Flood Insurance Rate Map (FIRM) which has been adopted by the City and are referenced in the Floodplain Overlay District provisions of the Code.



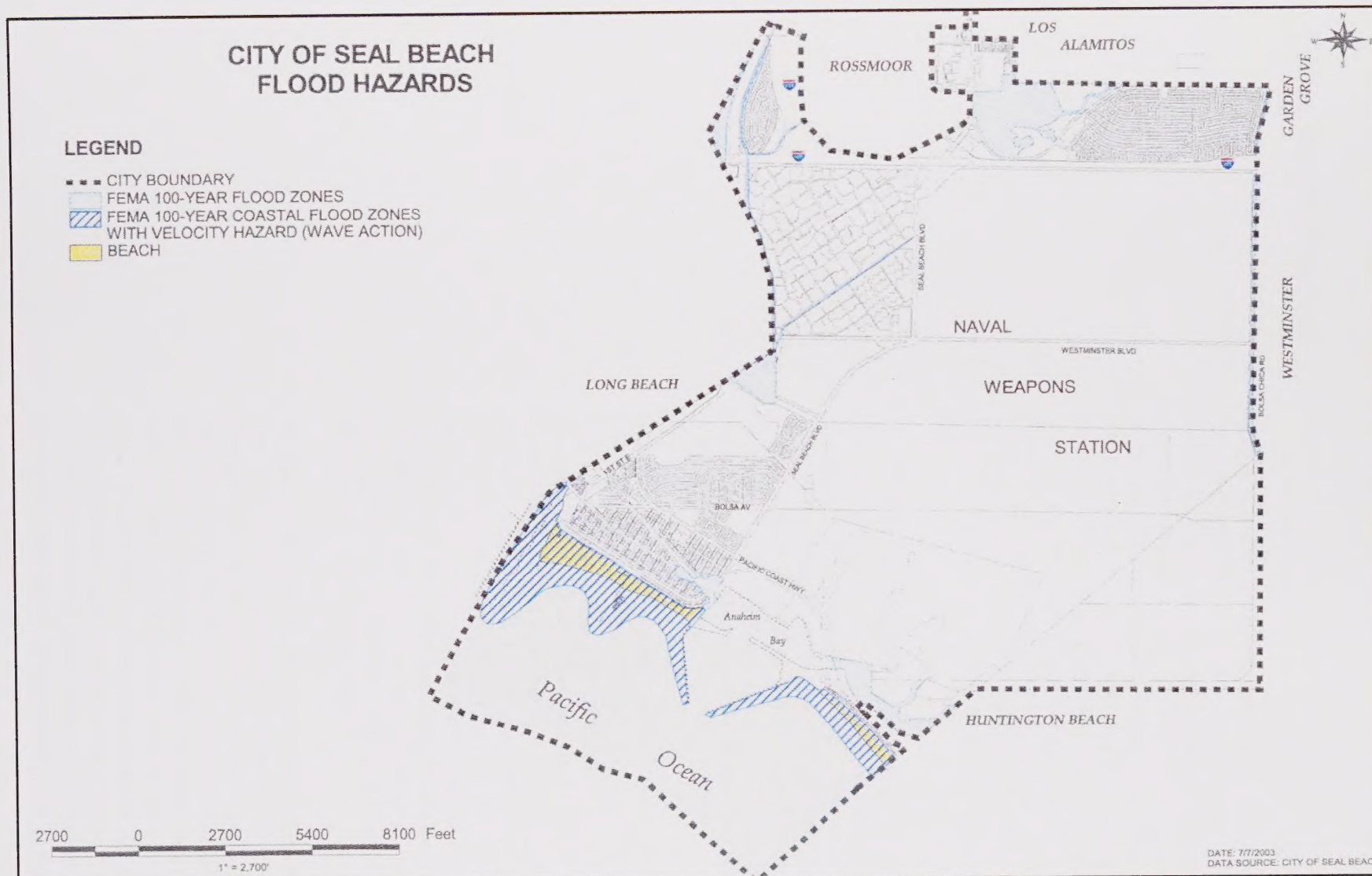


Figure S-7 - FEMA Flood Zones



Water Quality Control

In 1990 the City, along with the County of Orange, the Orange County Flood Control District, and the other Cities of Orange County (as Co-Permittees), were issued a National Pollutant Discharge Elimination System (NPDES) Stormwater Permit as part of the implementation of the Federal Clean Water Act, by the Environmental Protection Agency (EPA) through the State of California and the State Water Resources Control Board. The permit is renewed, generally speaking, every five years. The First Term Permit expired early in 1996 and was replaced by the Second Term Permit. The current permit, the Third Term Permit, subsequently replaced the Second Term Permit in September 2001.

The NPDES Permit established two major requirements: 1) an effective prohibition of non-stormwater pollutant discharges into the storm drainage system; and 2) implementation of water quality Best Management Practices (BMPs) through the development and adoption of a Drainage Area Management Plan (DAMP). The BMPs are intended to reduce the amount of erosion sediment discharging into the stormwater drainage system to the “maximum extent practicable” (MEP).

Central to an effective prohibition of non-stormwater discharges is the enactment by local jurisdictions of ordinances preventing such discharges. On April 24, 1995, the City of Seal Beach adopted a “Storm Water Management Program” ordinance. The Storm Water Management Program Ordinance is intended to prevent industrial waste pollution, as well as other non-stormwater pollutant discharges, and all new development will be required to comply with the water quality management techniques as outlined by the Best Management Practices of the DAMP. Furthermore, in an ongoing effort to protect and enhance coastal waters, the City developed a “Storm Water Quality Management Plan” in July 2001.

On January 18, 2002, the Santa Ana RWQCB adopted the Orange County Municipal NPDES Storm Water Permit for the northern portion of Orange County (the San Diego RWQCB jurisdiction covers the remaining portion of Orange County). The new permit updates water quality standards for new development, and these standards have been incorporated and applied to this project. These updated standards include numerical sizing criteria for water quality treatment and proper monitoring and maintenance of storm water facilities. Numerical sizing criteria specifically state that a certain quantity of first flush runoff shall



be treated to remove the pollutants of concern (those introduced by the project) to the MEP. The permit supports the use of bio-swales, detention ponds, infiltration landscaping, constructed wetlands, and structural BMP devices as means for meeting the MEP and best available technology (BAT) requirements.

Policies

- 5A. Periodically inspect and maintain all public drainage structures and remind property owners to maintain private drainage structures in order to maximize capacity.
- 5B. Implement a public education program pertaining to flood hazards and ways in which citizens can protect themselves and their property.
- 5C. Contain and utilize runoff from impervious surfaces on-site to the greatest extent possible. Transmit excess runoff to the nearest street or facility capable of conveying the runoff without impacting downstream areas.
- 5D. Plan capacity for the 100-year flood and provide short term reasonable protection for locations that would benefit from 10-, 25- or 50-year storm drainage facilities.
- 5E. Consider the effects on beach sand replenishment of improvements to drainage channels.
- 5F. Pursue a regional approach to watershed management, particularly in regards to the San Gabriel River, and coordinate improvement plans with local, state, federal, and community-based organizations and agencies, including all of the jurisdictions located upstream on the San Gabriel River.
- 5G. Review and update the Master Plan of Drainage to integrate the drainage systems of the entire City into one plan and include an implementation schedule and priorities for improvements.
- 5H. Continue the practice of preventive maintenance, including storm tracking and proactive street and storm drain maintenance.



- 5J. Monitor the effects of inland development on the City's watershed and its management and attempt to minimize their impacts.
- 5K. Monitor the Los Alamitos Retarding Basin improvement program proposed by the Orange County Flood Control District.
- 5L. Continue to participate in the National Flood Insurance Program and utilize the most recent Flood Insurance Rate Maps in the implementation and enforcement of the City's "Floodplain Overlay District" requirements.



Topic 6: Shoreline Protection

The California coastline has been eroding for thousands of years. Erosion did not present economic or safety issues as long as the coastal areas were left undeveloped or were used for agriculture or low-intensity recreation. The desire for magnificent ocean views and convenient beach access has induced many people to build at the ocean's edge, even in high-risk locations. For such dwellings, each severe winter storm is a potential disaster. Coastal erosion is likely to continue or even to accelerate in the future.

Damage from storms and erosion are episodic in nature. The winter storm of 1982-83 resulted in substantial losses to Orange County beaches, including the Seal Beach area. With continued coastal community growth and development, property values continue to increase. Costs from damage due to major storms could be greater each year as coastal land is increasingly upgraded and developed. Owners of oceanfront properties become more concerned with protecting their investment from storm erosion and structural damage. During and after severe storms, many oceanfront property owners attempt to construct protective devices that do not consider the complex interrelationships of the land and sea.

Beach retreat is a natural process. When considered over a long period of time, the sea cliffs and beaches are retreating. This retreat is episodic, infrequent, site-specific, directly related to wave climate and rainfall, and highly impacted by urbanization. The protection, preservation, and restoration of sandy beaches and the desire of private property owners to protect their investments are closely interrelated. The value and enjoyment of oceanfront property depends, to a great degree, upon the existence of a sandy beach. As sandy beach widths are reduced, an increase in the amount of wave attack on beachfront property and the base of the existing sea cliff occurs.

Sand management is the act of controlling the littoral sediment resource, to the extent possible, to benefit the recreational and protective functions of a beach. It requires that changes in beach width be anticipated before they occur. Only then can enlightened decisions be made and cost-effective methods be implemented to deal with undesirable shoreline behavior.



The Effects of Man

Since the early 1900s, man has permanently altered the natural cycle by developing the coastal lands and harbors. The major sources of sediment no longer provide the necessary quantities of sediment to keep the natural cycle in balance. Under natural conditions, 1.2 million cubic yards of sand per year would be delivered to the San Pedro cell by the Los Angeles, San Gabriel, and Santa Ana Rivers. Due to the construction of dams, channel lining, detention basins, and the urbanization of the land within the watershed, relatively little coarse sediment, beach sand, reaches the coast. Most sediment deposited on the beaches occurs in the form of urban silt, the mix of dust, hydrocarbons, and other man-made materials, or when the inland storm facilities fail and spot erosion occurs.

The construction of other man-made devices such as breakwaters, jetties, groins, and revetments has interrupted the littoral transport of sediment. Breakwaters are structures that are constructed offshore to dissipate wave action to permit safe harbors. Since wave action is reduced within the protected harbor, littoral transport is effectively reduced to an insignificant level. Jetties are constructed to permit clear channels for river flood control purposes and to keep harbor entrances clear of sediment. Sand that is transported by littoral current is trapped up-drift of the jetty. Without an adequate system to bypass the jetty, the opposite downdrift jetty experiences erosion. Groins are structures that are usually built perpendicular to the beach. They are constructed to form small cells or compartments that are filled with sand. The small distance between the groins limits the erosion and traps the sand. All of these structures alter wave patterns by reflecting and diffracting waves so that the adjacent shorelines will be modified and will seek new equilibrium shapes.

In 1933, two parallel jetties were constructed along with a channel for the San Gabriel River to prevent flooding and enable the development of the Southern California Edison and Los Angeles Department of Water & Power electric generating plants which require cooling intakes and outfalls. The easterly jetty was built at 725' long and the westerly jetty was built at 375' long and was later extended to the 725' length. By 1940, an additional 800' jetty was built to separate the river from the Alamitos Bay. Over the years the Alamitos Bay jetties were extended to 3,400' to provide for a navigational access to the Long Beach Marina. These improvements further impeded the littoral transport of sand to the south.



During that same time period, the Navy constructed the Naval Weapon Station (1945-47). Included in that project were two (3,000' and 3,400') rubble mound arrowhead jetties to form a safe harbor at Anaheim Bay for the loading of armament for Navy vessels. These structures further interrupted nature's process of sediment transport.

The construction of the Los Angeles and Long Beach Harbors created more than eight miles of breakwaters by 1949. The breakwater effectively prevents littoral transport of sediments from the northerly cell and the bluffs at San Pedro from reaching beaches in Long Beach, Seal Beach, and downdrift beaches. The beaches behind the breakwater have minor wave action and are relatively stable, but the beach and water quality have suffered.

In the 1950s, concern over the continuing erosion problem between the San Gabriel River jetty and the Anaheim Bay jetty caused a groin to be constructed adjacent to the Seal Beach Pier. The existing concrete sheet pile groin was constructed in 1959 by the Army Corps of Engineers. The groin was constructed to extend 750 feet into the ocean, and each cell (now named West and East Beaches) was filled with sand. The groin was proposed as "the solution" to the shoreline erosion problem that had been caused by the construction of the jetties and breakwaters. It was thought that with the construction of the groin, the beach would remain relatively stable. However, replenishment and backpass (sand transfer) projects are required to maintain both beaches.

The combined effects of these various structures produce unique problems along the shoreline in Seal Beach. The East Beach has water quality problems. This has been attributed to three conditions: the absence of a littoral current at its northwestern edge due to the breakwater; the trash that flows out of the San Gabriel River and Alamitos Bay (Long Beach Marina); and the position of the groin at the pier, which reflects the prevailing westerly waves into a counterclockwise current similar to an eddy. The West Beach experiences severe erosion due to a northwesterly longshore current that is generated by waves that are reflected by the jetty at the entrance to Anaheim Bay. The Surfside Beach downdrift of the Anaheim Bay jetty has historically experienced severe erosion adjacent to the jetty, which often jeopardizes the beach front residences. The fear of loss prompted the Surfside community to construct a rock revetment wall as a last line of defense to protect the existing homes along the shore.



The non-structural solutions to shoreline erosion include replenishment and backpassing. Replenishment places beach sand on the shoreline from inland supplies or dredged from offshore bars. Sand replenishment can be very successful in mitigating shoreline erosion. In general, any solution to a coastal problem that closely imitates the natural process will have a greater chance of success than solutions that attempt to overwhelm or counteract the process. The placement of sand in the appropriate quantities can mitigate a man-made obstruction to littoral sand transport. Backpassing is a technique where sand is moved from one area to another adjacent or nearby area in the cell. The net sum gain in the sand budget within the cell is zero since the shoreline will seek its dynamic equilibrium. The temporary movement of sand can be beneficial in temporary protection during the winter storm season.

Beach sand replenishment has been the predominant method of maintaining the shorelines in Seal Beach. Since 1945, 16,237,000 cubic yards of sand was placed on the beach at Surfside. This beach nourishment occurred with the understanding that the Surfside Beach would serve as a feeder beach to the beaches to the south. Recently, new data has indicated that the sand does not entirely reach the beaches at the southern end of the cell as anticipated. The Corps of Engineers has recently designated the West Newport Beach as an additional feeder beach. Between 1954 and 1988, approximately 2,055,000 cubic yards of sand was replenished on the East and West Beaches. In addition to the replenishment, approximately 250,000 cubic yards of sand was backpassed to combat shoreline erosion. Based on today's costs to dredge sand at \$4 to \$6 per cubic yard, for trucking in sand at \$10 to \$15 per cubic yard and to backpass sand at \$2 to \$3 per yard, one can speculate that several millions have been spent and will continue to be spent to maintain the shoreline within the Seal Beach and Huntington subcells.

Local Conditions

The Seal Beach coastline is characterized by short, generally narrow sandy beaches separated by protruding manmade jetties for the San Gabriel River and the Seal Beach Naval Weapons Station. Beaches formed prior to the construction of these jetties are now modified and maintained in the embayments because there they are partially protected and contained by the jetties. The natural feeding of these beaches has been substantially modified by the construction of the jetties and the reduction in sediment discharge material from the San Gabriel River due to



upstream modifications. The sand is held in the bay or compartment and the compartment functions as a closed sand system (sand moving parallel to shore) that can be managed separately from other coastal compartments.

No residential or commercial structures in the City are exposed directly to ocean wave attack. Periodically, a high storm surge has caused local flooding in beachfront homes along the main beach in Seal Beach and in the Surfside area. In an ongoing effort to arrest this process and to maintain the beach front for recreational use, the City has undertaken beach nourishment projects, and will continue to investigate long-term solutions to the beach erosion issue within the community.

Beach replenishment is an active management response to an imbalance in the sediment budget of a coastal compartment. Beach or sand replenishment could be an aesthetically attractive and economic alternative to the construction of hard shoreline protection devices. Beaches are very effective in dissipating wave energy. It is important to understand that sand replenishment cannot be expected to solve all shoreline problems, especially areas that are experiencing failures independent of wave attack. Nevertheless, the potential benefits of using a natural material such as sand for shore protection should remain the primary focus of the City. The development of a database could help to prepare for a long-range planning effort.

Knowledge of the natural and actual rates of shoreline erosion is important for planning purposes. Comprehensive studies of rates of erosion by oceanographers and marine geologists have not been done during past decades. The City of Seal Beach is participating in a five-year study of the Orange County Coast. The cost is shared by the federal government, Orange County, and five coastal cities, including Seal Beach. The study began in 1991 and covers the portion of the Orange County coastline from the mouth of the San Gabriel River to the Dana Point headlands, approximately 32 miles. The product of this report will provide a database of sediment type, movement and location, wind, currents, and wave height and frequency that will establish a "normal" condition. A primary goal is to provide comprehensive coastal data and information in a format that helps coordinate and enhance the efforts of federal, state, and local agencies involved in managing and maintaining valuable coastal resources. Such information can be invaluable in designing beach nourishment projects and in preparing oil spill contingency plans, both of which are regional issues. The study will provide an opportunity for commencing a regional benchmark



investigation and will enable the City to more effectively conduct “resource monitoring” along the City’s coastline.

Policies

- 6A. Prohibit the construction of buildings and other man-made structures on the sandy portion of the beach, unless necessary for public health and safety.
- 6B. Review any development application for shoreline construction with respect to the effects of beach encroachment, wave reflection, flood and wave hazards, public access and public recreation, shoreline sand supply, and aesthetics.
- 6C. Prohibit shoreline protective devices unless there is evidence that existing structure(s) are in imminent danger from erosion and wave/flooding hazards, and the shoreline protection device is designed to mitigate adverse impacts on local shoreline sand supply, public access, and public recreation, and unless all reasonable alternatives have been explored.
- 6D. Enforce current building setback standards on local beaches to prevent exposure of structures to large sea waves of seismic or storm origin.
- 6E. Prevent shoreline development that would place structures in danger of wave attack or degrade natural means of shoreline protection.
- 6F. Ensure that storm water and drainage are contained, controlled, and discharged in an appropriate manner.
- 6G. Explore possibilities for beach or sand replenishment as the primary alternative to the construction of hard shoreline protection devices.
- 6H. Consider the impacts of flood control improvements on sand replenishment of the beach.
- 6I. Require the repair of damaged shoreline protection devices to be consistent with prevailing zoning regulations and general plan policies.



Implementation

The policies of the Safety Element of the General Plan establish the actions and requirements necessary to direct safety-related decisions in the City. It is recognized that the implementation of the policies in this document may already be underway or may evolve dependent upon City staffing levels, economic conditions, and manmade or natural physical events. The time-frame objectives delineated in this section are goals for actions to be accomplished over the next several years. This section also identifies actions that need to be undertaken on an ongoing basis. The time-frames are based on a snapshot of the community values, politics, and conditions at a particular moment in time. Since these factors are continually in flux, the City must continually monitor the relevance of the Safety Element policies and their implementation progress, so that the main goal of protecting the public's health and safety over time is maintained and improved. The City Council recognizes this charge and will bi-annually review the safety objectives achieved during the preceding time period, and will set new safety objectives for the next bi-annual time period, based upon changing conditions, new information and revised City policies and priorities.

Many of the implementation actions will require additional staffing and/or additional funding for their successful and timely completion. Funding constraints beyond the City's control may make it difficult or impossible to allocate funds for the necessary staff, equipment, or consulting services necessary to complete some of the items. It is recognized that the necessary staff, equipment, and consultants are dependent upon an annual appropriation by the City Council as part of the annual budget process and review and prioritization of safety objectives. It is also recognized that the implementation measures identified in this Safety Element will realize substantial cost benefits in the preparation for disasters and their avoidance or impacts.

Some of the implementation measures require capital improvement projects to be constructed. These projects may require a review according to the provisions of the California Environmental Quality Act, and environmental degradation and grading shall be minimized to the greatest extent possible. However, it is also likely that some of these projects, such as emergency access improvements, may prevent the literal consistency with all of the pertinent General Plan and environmental protection policies, thereby necessitating a careful balancing of competing objec-



tives. Public health and safety should be of primary concern when prioritizing these competing objectives.

The City's Safety Element includes actions which range from measures necessary to insure consistency between the City's general plan and federal, state, and local regulations to those actions required to fulfill the policies in the plan. These actions have been divided into four time frames with the designation the primary department(s) responsible for their implementation.

Within one year of adoption of this Safety Element, these City Departments are primarily responsible for the following:

- Police Department (in cooperation with Fire Authority)
 - Updating the Emergency Services Plan, incorporating a citizen response model, evacuation plans, emergency aid, a comprehensive communications component, and a coordination program with other local government agencies, schools, hospitals and utility companies.
- Development Services Department/Engineering Department
 - Maintaining and updating, as appropriate, a Master Plan of Drainage for the entire City, providing for a minimum protection objective of 25-year flood through the use of flood water conveyances, retention and holding basin facilities, including a prioritization of projects.
 - Investigating the establishment of interim holding or drop-off centers for hazardous materials.
 - Evaluating the location of all public facilities in relation to hazard areas for possible relocation.
 - Establishing and maintaining critical no parking/tow away zones for public safety.
 - Developing an informational hazardous material and disaster preparedness educational program for individual households and neighborhood associations.
 - Identifying utility facilities in hazard areas for relocation or undergrounding.
 - Preparing a pamphlet regarding fire safety as it relates to landscaping installation and maintenance.
 - Evaluating the relocation of equipment and services for emergency purposes.

Within two years of adoption of this Safety Element, these City Departments are primarily responsible for the following:



- Police Department (in cooperation with Fire Authority)
 - Undertaking a comprehensive emergency access and evacuation evaluation program and implementing its recommendations.
 - Coordinating local emergency service facilities with utility companies.
- Development Services Department/Engineering Department
 - Identifying the effects of the most probable seismic event on the City's infrastructure.
 - Developing an education program promoting emergency response preparedness, especially for earthquake survivability, and home retrofitting and adequate anchoring.
 - Maintaining and updating, as appropriate, an information pamphlet on flood hazards and protection measures.

Within three years of adoption of the Safety Element, these City Departments are primarily responsible for the following:

- Police Department (in cooperation with Fire Authority)
 - Maintaining the Emergency Operations Center.
- Development services Department/Engineering Department
 - Preparing a Geological Hazards Map of the entire City.

Finally, the last part of the implementation section lists actions to be taken on an ongoing basis and include the following:

- City Council
 - Bi-Annually review the Safety Element objectives achieved during the preceding year and set the safety objectives for the time period, based upon changing conditions, new information, revised City policies and priorities and budget constraints.
 - Ensure that adequate facilities and police and fire services are maintained to protect the citizens of Seal Beach.
 - Oppose offshore oil leasing.
- All City Departments



- Participate in emergency response exercises and operational support for the Emergency Operations Center.
- Police Department (in cooperation with the Fire Authority)
 - Maintain mutual aid arrangements and hold disaster preparedness exercises.
 - Maintaining an Emergency Management Coordinator function in the Police Department.
- Fire Authority
 - Monitor local sources of toxic wastes.
 - Encourage and support the use of alternatives to toxic materials.
 - Maintain the performance standard of an average total reflex time of seven minutes or less.
 - Encourage property owners to create defensible space surrounding their homes.
 - Work with the Water Districts to maintain an adequate supply of water, both for consumptive use and emergency fire-fighting supply.
- Development Services Department
 - Require that new streets have a minimum unobstructed width of 20 feet.
 - Require the undergrounding of utilities for new development.
 - Require soils and geology reports based on subsurface explorations and their independent review for new development. Maintain these reports on file and index in the City's Geographic Information System. Restrict development where there is a geological unacceptable level of risk.
 - Require supervision of a soils engineer for grading operations.
 - Enforce bluff and hillside protection measures.
 - Require erosion control measures for new development.
 - Adopt the latest editions of the Uniform Building Code, especially in regards to earthquake standards and fire resistant construction.
 - Prohibit the location of new essential facilities in geologically hazardous areas.
 - Require the latest earthquake standards for new essential facilities.



- Encourage property owners to consider “fire-wise” planting surrounding their homes.
- Monitor the effects of inland development on the City’s watershed and attempt to minimize their impacts.
- Prohibit the construction of structures on the sandy portion of the beach.
- Enforce current building setback standards from beaches and bluff tops.
- Engineering Department
 - Ensure that new public facilities or major additions are designed and located to minimize or eliminate any potential hazard impacts.
 - Promote and implement safe transport and/or disposal of hazardous wastes.
 - Facilitate effective response to hazardous materials emergencies.
 - Facilitate the proper separation of sewer and storm drain systems through proper design, infrastructure upgrades, and timely maintenance.
 - Provide for ongoing maintenance and inspections of all public drainage facilities and encourage property owners to maintain private drainage structures.
 - Maintain and improve the City’s storm drainage infrastructure capacity. Ensure that storm water and drainage are contained, controlled, and discharged in an appropriate manner.
 - Eliminate or mitigate uncontrolled storm drain flow on hillsides or bluffs. Utilize only proven and effective erosion control methods after fire disasters. Develop, adopt, and construct flood control plans. Minimize their environmental consequences.



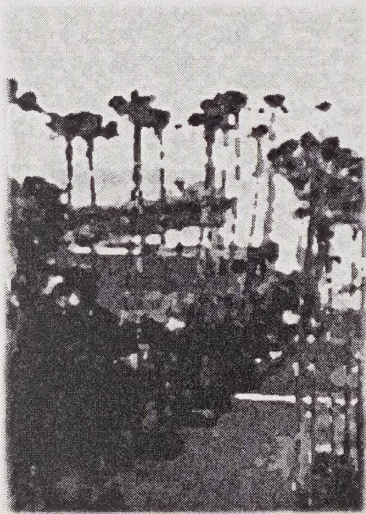
City of Seal Beach



Housing Element

The Housing Element was not included in the 2003 General Plan Update, and will be reviewed and adopted separately. The proposed Housing Element can be reviewed at the City offices.

City of Seal Beach



Noise Element

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Introduction

The Noise Element follows the revised state guidelines in the California *Government Code* §653021(g) and §46050.1 of the *Health and Safety Code*. The element quantifies the community noise environment in terms of noise exposure contours for near-term and long-term levels of growth and traffic activity. The information will become a guideline for the development of land use policies to achieve compatible land uses and provide baseline levels and noise source identification for local Noise Ordinance enforcement. The Noise Element is organized as follows:

- 2.0 Noise Environment/Issue Analysis
- 3.0 Goals, Objectives, and Policies
- 4.0 The Plan for Control and Management of Noise
- 5.0 Glossary

Purpose

The Noise Element of a General Plan is a comprehensive program for including noise control in the planning process. It is a tool for local planners to use in achieving and maintaining compatible land use with environmental noise levels. The Noise Element identifies noise sensitive land uses and noise sources, and defines areas of noise impact for the purpose of developing programs to ensure that Seal Beach residents will be protected from excessive noise intrusion.

Authorization

The State of California has mandated that each county and city prepare a Noise Element as part of its General Plan. Section 65302(g) of the California *Government Code* requires specifically:

- (g) A Noise Element shall identify and appraise noise problems in the community. The noise element shall recognize the guidelines established by the Office of Noise Control in the State Department of Health Services and shall analyze and quantify, to the extent practicable, as determined by the



legislative body, current and projected noise levels for all of the following sources:

- Highways and freeways.
- Primary arterials and major local streets.
- Passenger and freight on-line railroad operations and ground rapid transit systems.
- Commercial, general aviation, heliport, helistop, and military airport operations, aircraft overflights, jet engine test stands, and all other ground facilities and maintenance functions related to airport operation.
- Local industrial plants, including, but not limited to, railroad classification yards.
- Other ground stationary noise sources identified by local agencies as contributing to the community noise environment.
- Noise contours shall be shown for all sources and stated in terms of community noise equivalent level (CNEL) or day-night average level (LDN). The noise contours shall be prepared on the basis of noise monitoring or following generally accepted noise modeling techniques for the various sources identified above. The noise contours shall be used as a guide for establishing a pattern of land uses in the land use element that minimizes the exposure of community residents to excessive noise. The Noise Element shall include implementation measures and possible solutions that address existing and foreseeable noise problems, if any. The adopted noise element shall serve as a guideline for compliance with the state's noise insulation standards.

The State Guidelines for Preparation and Content of Noise Elements of the General Plan indicates that the Noise Element should present the noise environment in terms of noise contours. For those areas identified as containing noise sensitive facilities, the noise environment is determined by monitoring.

Definition of Noise

Sound is technically described in terms of the loudness (amplitude) of the sound and frequency (pitch) of the sound. The standard unit of measurement of the loudness of sound is the



Decibel (dB). Since the human ear is not equally sensitive to sound at all frequencies, a special frequency-dependent rating scale has been devised to relate noise to human sensitivity. The A-weighted decibel scale (dBA) performs this compensation by discriminating against frequencies in a manner approximating the sensitivity of the human ear.

Decibels are based on the logarithmic scale. The logarithmic scale compresses the wide range in sound pressure levels to a more usable range of numbers in a manner similar to the Richter scale used to measure earthquakes. In terms of human response to noise, a sound 10 dBA higher than another is judged to be twice as loud; and 20 dBA higher four times louder, and so forth. Everyday sounds normally range from 30 dB (very quiet) to 100 dB (very loud). Examples of various sound levels in different environments are shown in Figure N-1.

Noise has been defined as unwanted sound, and it is known to have several adverse effects on people. From these known effects of noise, criteria have been established to help protect the public health and safety and prevent disruption of certain human activities. These criteria are based on such known impacts of noise on people as hearing loss, speech interference, sleep interference, physiological responses, and annoyance. Each of these potential noise impacts on people is briefly discussed in the following narratives.

- **HEARING LOSS** is not a concern in community noise problems of this type. The potential for noise-induced hearing loss is more commonly associated with occupational noise exposures in heavy industry or very noisy work environments. Noise levels in neighborhoods, even in very noisy airport environs, are not sufficiently loud to cause hearing loss.
- **SPEECH INTERFERENCE** is one of the primary concerns in environmental noise problems. Normal conversational speech is in the range of 60 to 65 dBA, and any noise in this range or louder may interfere with speech. There are specific methods of describing speech interference as a function of distance between speaker and listener and voice level.



Sound Levels and Loudness of Illustrative Noises in Indoor and Outdoor Environments

(Numbers in Parentheses are the A-Scale Weighted Sound Levels for that Noise Event)

dB(A)	Overall Level - Sound Pressure Level Reference: 0.0002 Microbars	Community (Outdoor)	Home or Industry	Loudness - Human Judgment of Different Sound Levels
130		- Military jet aircraft take-off with after-burner from aircraft carrier @ 50 ft (130)	- Oxygen torch (121)	120 dB(A) 32 times as loud
120 110	Uncomfortably loud	- Turbo-fan aircraft @ take-off power @ 200 ft (110)	- Riveting machine (110) - Rock and roll band (108-114)	110 dB(A) 16 times as loud
100		- Jet flyover @ 1000 ft (103) - Boeing 707, DC-8 @ 6080 ft before landing (106) - Bell J-2A helicopter @ 100 ft (100)		100 dB(A) 8 times as loud
90	Very loud	- Power mower (96) - Boeing 737, DC-9 @ 6080 ft before landing (97) - Motorcycle @ 25 ft (90)	- Newspaper press (97)	90 dB(A) 4 times as loud
		- Car wash @ 20 ft (89) - Prop airplane flyover @ 1000 ft (88) - Diesel truck, 40 mph @ 50 ft (84) - Diesel train, 45 mph @ 100 ft (83)	- Food blender (88) - Milling machine (85) - Garbage disposal(80)	80 dB(A) 2 times as loud
70	Moderately loud	- High urban ambient sound (80) - Passenger car, 65 mph @ 25 ft (77) - Freeway @ 50 ft from pavement edge, 10:00 a.m. (76 ±6)	- Living room music (76) - TV audio, vacuum cleaner	70 dB(A)
60		- Air conditioning unit @ 100 ft (60)	- Cash register @ 10 ft (65-70) - Electric typewriter @ 10 ft (64) - Dishwasher (rinse) @ 10 ft (60) - Conversation (60)	60 dB(A) half as loud
	Quiet	- Large transformers @ 100 ft (50)		50 dB(A) one- quarter as loud
40		- Bird calls (44) - Lower limit urban ambient sound (40)		40 dB(A) one- eighth as loud
20	Just audible	- Desert at night (dB(A) scale interrupted)		
10	Threshold of hearing			

Figure N-1 – Typical A-Weighted Noise Levels



- **SLEEP INTERFERENCE** is a major noise concern because sleep is the most noise sensitive human activity. Sleep disturbance studies have identified interior noise levels that have the potential to cause sleep disturbance. Note that sleep disturbance does not necessarily mean awakening from sleep, but can refer to altering the pattern and stages of sleep.
- **PHYSIOLOGICAL RESPONSES** are those measurable effects of noise on people which are realized as changes in pulse rate, blood pressure, etc. While such effects can be induced and observed, the extent is not known to which these physiological responses cause harm or are signs of harm.
- **ANNOYANCE** is the most difficult of all noise responses to describe. Annoyance is a very individual characteristic and can vary widely from person to person. What one person considers tolerable can be quite unbearable to another of equal hearing capability.

Background on Standards

Community noise is generally not a steady state and varies with time. Under conditions of non-steady state noise, some type of statistical metric is necessary to quantify noise exposure over a long period of time. Several rating scales have been developed for describing the effects of noise on people. They are designed to account for the above known effects of noise on people.

Based on these effects, the observation has been made that the potential for noise to impact people is dependent on the total acoustical energy content of the noise. A number of noise scales have been developed to account for this observation. These scales are the: Equivalent Noise Level (LEQ), the Day Night Noise Level (LDN), and the Community Noise Equivalent Level (CNEL). These scales are described in the following paragraphs.

- **LEQ** is the sound level corresponding to a steady-state sound level containing the same total energy as a time-varying signal over a given sample period. LEQ is the “energy” average noise level during the time period of the sample. LEQ can be measured for any time period, but is typically measured for 15 minutes, 1 hour, or 24-hours.
- **LDN** is a 24-hour, time-weighted annual average noise level. Time-weighted refers to the fact that noise that occurs



during certain sensitive time periods is penalized for occurring at these times. In the LDN scale, those events that take place during the night (10:00 p.m. to 7:00 a.m.) are penalized by 10 dB. This penalty was selected to attempt to account for increased sensitivity to noise during the quieter period of day where sleep is the most probable activity.

- **CNEL** is similar to the LDN scale except that it includes an additional 5 dBA penalty for events that occur during the evening (7:00 p.m. to 10:00 p.m.) time period. Either LDN or CNEL may be used to identify community noise impacts within the Noise Element. Examples of CNEL noise levels are presented in Figure N-2.

The public reaction to different noise levels varies from community to community. Extensive research has been conducted on human responses to exposure of different levels of noise. Community noise standards are derived from tradeoffs between community response surveys, such as this, and economic considerations for achieving these levels.

Intermittent or occasional noise such as associated with stationary noise sources is not of sufficient volume to exceed community noise standards that are based on a time averaged scale such as the CNEL scale. To account for intermittent noise, another method to characterize noise is the Percent Noise Level (L%). The Percent Noise Level is the level exceeded X% of the time during the measurement period.

Noise ordinances are typically specified in terms of the percent noise levels. Ordinances are designed to protect people from non-transportation-related noise sources such as music, machinery, and vehicular traffic on private property. Noise Ordinances do not apply to motor vehicle noise on public streets or other transportation-related noise sources that are pre-empted by the state or federal government.



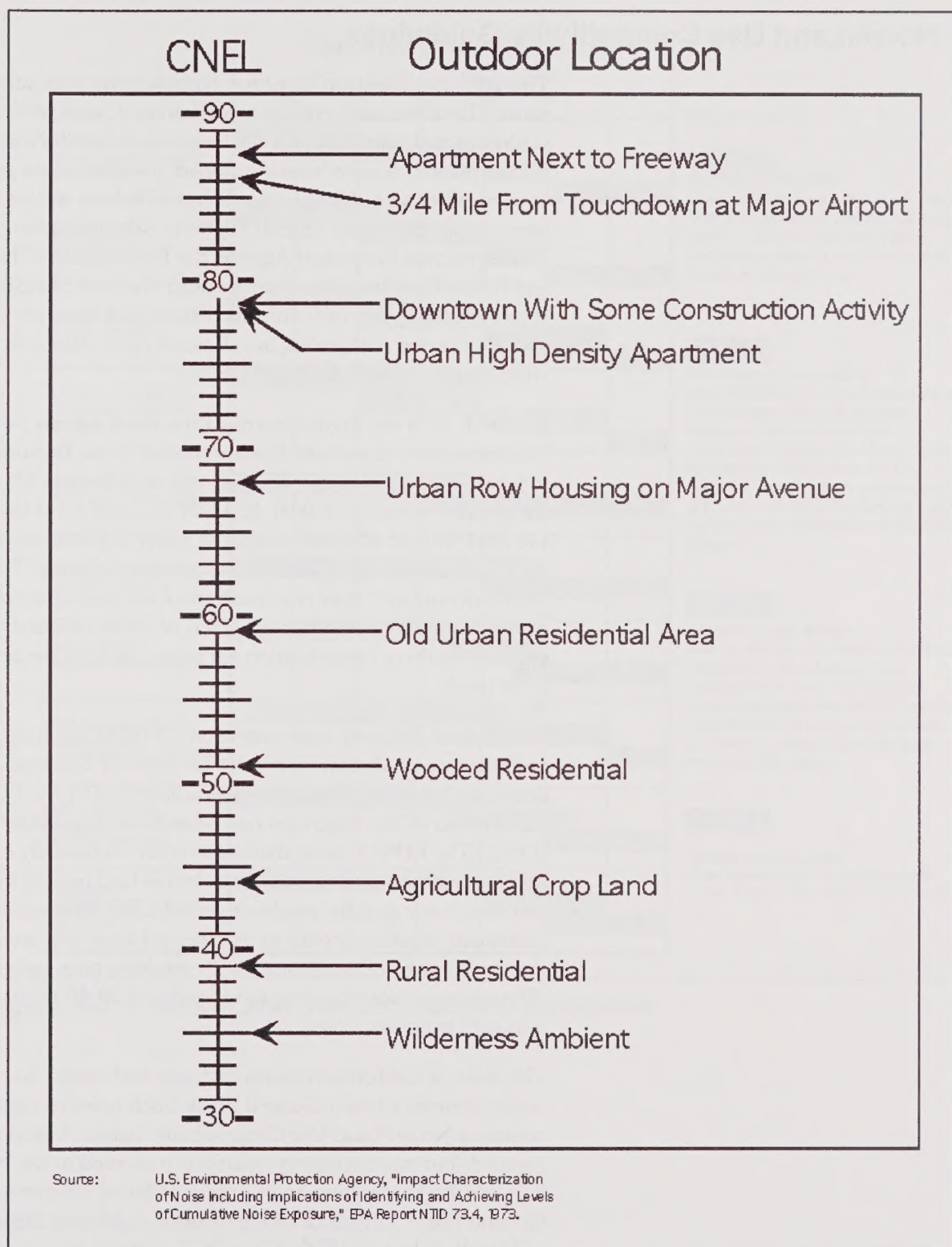


Figure N-2 – Typical CNEL Outdoor Noise Levels



Noise/Land Use Compatibility Guidelines

This section presents information regarding the compatibility of various land uses with environmental noise. It is from these guidelines and standards that the City of Seal Beach Noise Criteria and Standards have been developed. noise/land use guidelines have been produced by a number of federal and state agencies, including the Federal Highway Administration, the Environmental Protection Agency, the Department of Housing and Urban Development, the American National Standards Institute, and the State of California. These guidelines, presented in the following paragraphs, are all based upon cumulative noise criteria such as LEQ, LDN, or CNEL.

In March 1974 the Environmental Protection Agency published “Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety” (EPA 550/9-74-004). 55 LDN is described as the requisite level with an adequate margin of safety for areas with outdoor uses, including residences and recreational areas. The EPA “levels document” does not constitute a standard specification or regulation, but identifies safe levels of environmental noise exposure without consideration for economic cost for achieving these levels.

The Federal Highway Administration (FHWA) has adopted and published noise abatement criteria for highway construction projects. The noise abatement criteria specified by the FHWA are in terms of the maximum one hour Noise Equivalent Level (LEQ). The FHWA noise abatement criterion basically establishes an exterior noise goal for residential land uses of 67 LEQ and an interior goal for residences of 52 LEQ. The noise abatement criterion applies to private yard areas and assumes that typical wood frame homes with windows open provide 10 dB noise reduction (outdoor to indoor) and 20 dB noise reduction with windows closed.

The State of California requires each city and county to adopt noise elements of their General Plans. Such noise elements must contain a Noise/Land Use Compatibility matrix. A recommended (but not mandatory) matrix is presented in the “Guidelines for the Preparation and Content of Noise Elements of the General Plan,” (Office of Noise Control, California Department of Health, February 1976). Figure N-3 presents this recommended matrix for use in the City of Seal Beach.



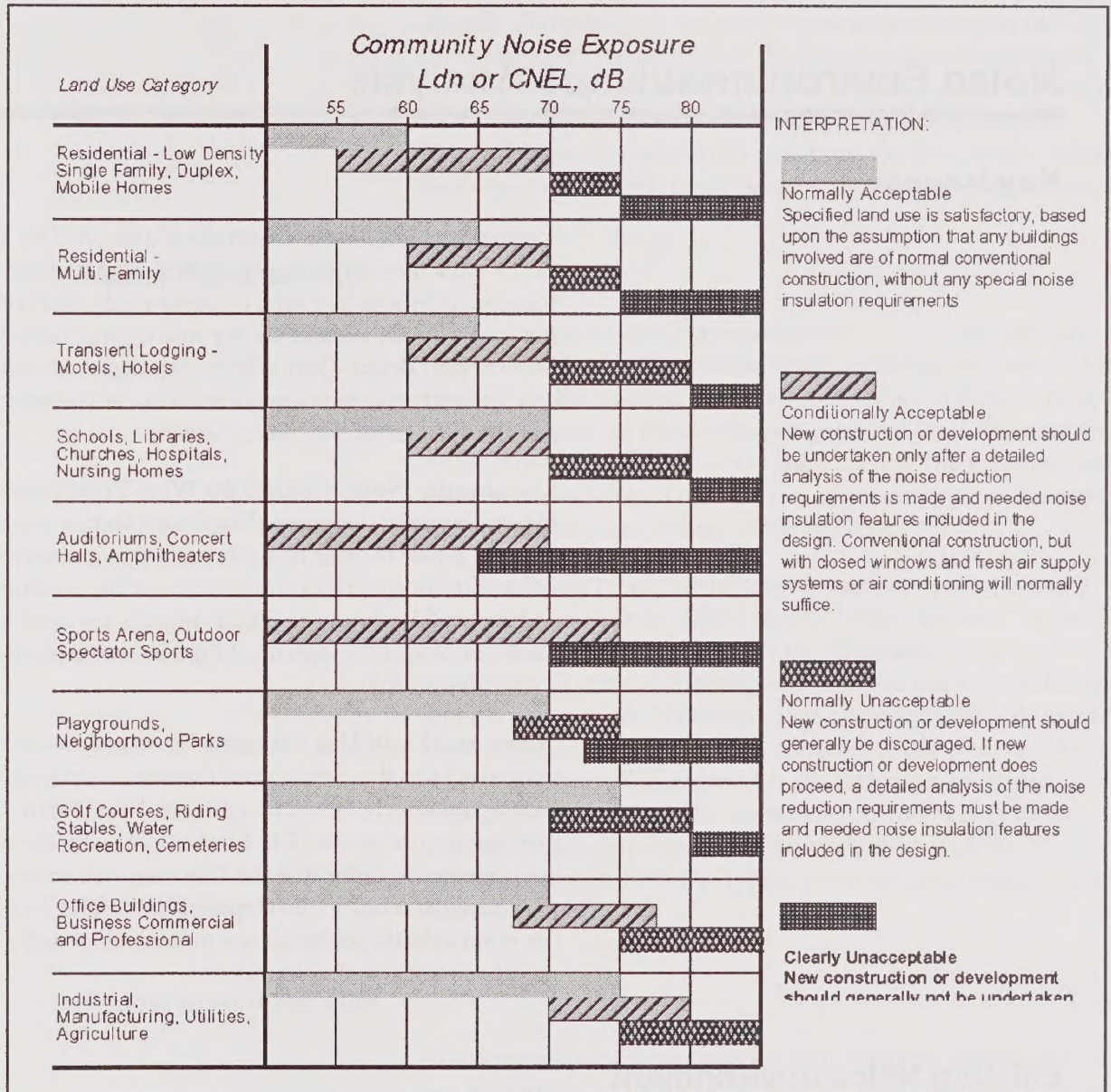


Figure N-3 – Noise/Land Use Compatibility Guidelines



Noise Environment/Issue Analysis

Key Issues

1. **Transportation Noise Control** - Within the City of Seal Beach are a number of transportation related noise sources, including freeways, major arterials, and collector roadways. These sources are the major contributors of noise in Seal Beach. Cost-effective strategies to reduce their influence on the community noise environment are an essential part of the Noise Element.
2. **Community Noise Control for Non-Transportation Noise Sources** - Residential land uses and areas identified as noise sensitive must be protected from excessive noise from non-transportation sources, including commercial and industrial operations. These impacts are most effectively controlled through the adoption and application of a City Noise Ordinance.
3. **Noise and Land Use Planning Integration** - Information relative to the existing and future noise environment within Seal Beach should be integrated into future land use planning decisions. The Element presents the noise environment in order that the City may include noise impact considerations in development programs. Noise/land use compatibility guidelines are presented, as well as guidelines for new developments.

Existing Noise Environment

This section contains a detailed description of the current noise environment within the City. This description of the noise environment is based on an identification of noise sources and noise sensitive land uses, a community noise measurement survey, and noise contour maps.

The predominant noise source in Seal Beach originates from motor vehicles. Several major arterial roadways pass through the City, including the San Diego Freeway (I-405), the San Gabriel River Freeway (I-605), the Garden Grove Freeway (SR 22), Pacific Coast Highway, and arterial roadways. In addition, noise levels within the City are affected by overflights from military



aircraft. To completely assess the noise environment in the City, noise sensitive receptors must also be identified. As mandated by the state, noise sensitive receptors include, but are not limited to, residential areas, areas containing schools, hospitals, rest homes, long-term medical or mental care facilities, or any other land use areas deemed noise sensitive by the local jurisdiction.

Noise Measurements

Ten sites were selected for measurement of the noise environment in Seal Beach. The measurement locations are presented in Figure N-4. Discussions with City staff and identification of major noise sources in the community provided the initial base for development of the community noise survey. The measurement locations were selected on the basis of proximity to major noise sources and noise sensitivity of the land use.

The Seal Beach Noise Element measurement survey utilized a Bruel and Kjaer Model 2236 Portable Noise Monitor. This instrument automatically calculates the Equivalent Noise Level (LEQ), maximum noise levels and percentile noise levels for any specific time period. The system was calibrated with a Bruel and Kjaer calibrator with calibration traceable to the National Bureau of Standards. Calibration for the calibrator is certified through the duration of the measurements by Bruel & Kjaer. This system satisfies the ANSI (American National Standards Institute) Standards 1.4 for Type 1 precision noise measurement instrumentation.

Measurement Results

The noise measurement program was conducted on November 20, 2002 at 10 locations throughout the City. The results of the ambient noise measurements at each site are listed in Table 1. The measurement data also identifies the primary noise source affecting the noise environment. The quantities measured were the Equivalent Noise Level (LEQ).



Table 1
Noise Measurement Results

Site	Lmax	LEQ	Roadway	Location
A	66.9	60.1	1st St.	West of P.C.H
B	65.3	59.8	Marina Dr.	At 4 th St.
C	66.9	63.2	Main St.	At Electric Ave.
D	73.4	68.2	P.C.H.	At 12 th St.
E	72.6	68.5	P.C.H.	Along Surfside Ave.
F	68.7	62.5	Bolsa Ave.	At Bayside Dr.
G	69.0	65.3	Seal Beach Blvd.	At Balboa Ave.
H	69.3	65.1	Westminster Ave.	West of Seal Beach Blvd.
I	72.8	70.3	Lampson Ave. / I-405	Old Ranch Country Club
J	67.4	66.1	Almond Ave. / I-405	At Aster

The noise measurements results indicate that the sites impacted by Pacific Coast Highway, Seal Beach Boulevard, Westminster Avenue, Lampson Avenue, and Almond (both adjacent to the freeway) experience noise levels of greater than 65 CNEL. It must be noted that these levels account for traffic noise as well as any other ambient noise in the environment. The noise levels measured are typical of urban environments. The LEQ noise levels measured are roughly equivalent to the CNEL noise levels that would occur at these same locations.

At all sites traffic noise was the primary noise source. Sites D, E, G, H, I, and J all experienced noise levels greater than 65 dBA (LEQ). All of these sites are along major roadways including Pacific Coast Highway, Seal Beach Boulevard, Westminster Avenue, and the 405 Freeway. All measurements, except Site I (located at the Old Ranch Country Club), were conducted at the property line of a residence with no intervening noise barriers. If these measurements had been conducted within the property line behind a noise barrier, a 5 dB reduction would result. Sites A, B, C, and F all experienced noise levels of less than 65 dBA (LEQ). All of these sites are along secondary roadways. Secondary roadways generate fewer vehicles at lower speeds than the major roadways impacting Sites D, E, G, H, I, and J.



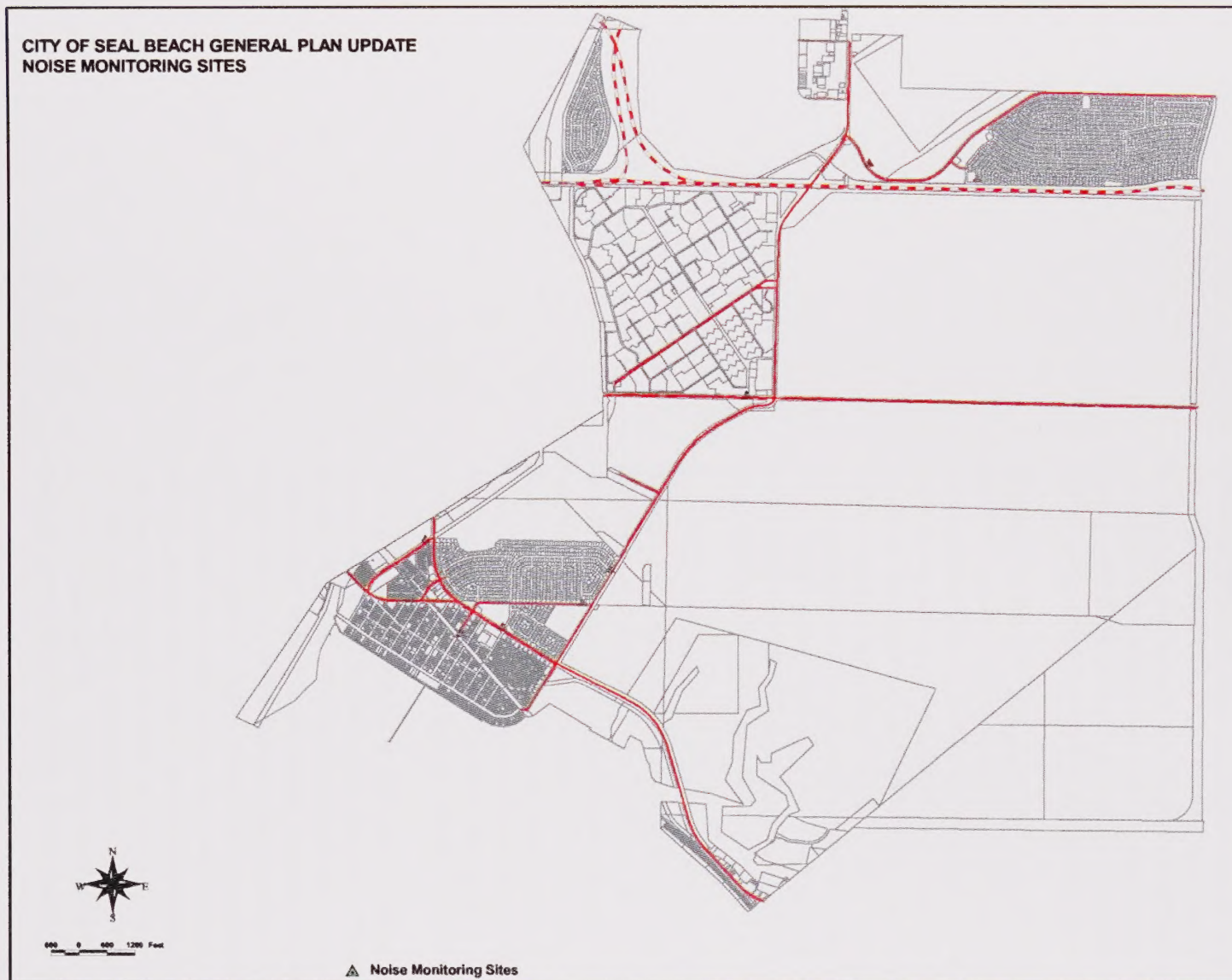


Figure N-4 – Noise Monitoring Sites



Existing Noise Sources and Levels

The noise environment in Seal Beach was determined through the employment of a comprehensive noise measurement survey of existing noise sources and incorporating these results into computer noise models to model the noise environment (it is, of course, impossible to measure future noise levels, so we must rely on computer noise models for future noise estimates).

The noise environment is commonly presented graphically in terms of lines of equal noise levels, or noise contours. The following paragraphs detail the methodology used in the measurement survey and computer modeling of these results into noise contours. The noise environment for Seal Beach can be described using noise contours developed for the major noise sources within the City. The major noise source impacting the City is traffic noise. Existing and future noise contour maps have been developed for the City as part of this noise element. In addition aircraft noise is addressed.

The traffic data used to project these noise levels are derived from the Circulation Element for the City prepared by Kunzman Associates and from Caltrans. The traffic mixes and time distributions for the arterials are presented on the following page in Table 2. The arterial traffic mix data is based on measurement surveys in Southern California and are considered typical for arterials in this area. The freeway traffic mix data was obtained from the "2001 Annual Average Daily Truck Traffic on the California State Highway System" published by Caltrans.

The traffic noise contours for existing conditions are presented in a tabular format in Table 3 and shown in Figure N-5. The 60, 65, and 70 CNEL contour levels are shown on the map. These traffic noise levels were computed using the Highway Noise Model published by the Federal Highway Administration ("FHWA Highway Traffic Noise Prediction Model," FHWA-RD-77-108, December 1978). The FHWA Model uses traffic volume, vehicle mix, vehicle speed, and roadway geometry to compute the LEQ noise level. A computer code has been written that computes equivalent noise levels for each of the time periods used in CNEL. Weighting these noise levels and summing them results in the CNEL for the traffic projections used.



Table 2
Traffic Distribution per Time of Day (% of ADT)

Vehicle Type	Day	Evening	Night
I-405(a)			
Automobile	66.74	16.92	10.34
Medium Truck	2.57	0.65	0.40
Heavy Truck	1.69	0.43	0.26
I-405(b)			
Automobile	66.88	16.96	10.36
Medium Truck	2.48	0.63	0.38
Heavy Truck	1.63	0.41	0.25
I-405(c)			
Automobile	66.46	16.85	10.30
Medium Truck	2.95	0.75	0.46
Heavy Truck	1.59	0.40	0.25
I-605			
Automobile	68.87	17.46	10.67
Medium Truck	1.07	0.27	0.17
Heavy Truck	1.07	0.27	0.17
SR 22			
Automobile	69.15	17.53	10.71
Medium Truck	1.17	0.30	0.18
Heavy Truck	0.68	0.17	0.11
Arterial Roadway			
Automobile	75.51	12.57	9.34
Medium Truck	1.56	0.09	0.19
Heavy Truck	0.64	0.02	0.08



Table 3
Existing Traffic Noise Contours (Year 2002)

Road Name	Segment	ADT	Speed	70 CNEL	65 CNEL	60 CNEL
1st Street	Marina Drive to Pacific Coast Highway	2400	35	8	16	35
5th Street	Marina Drive to Pacific Coast Highway	5200	35	13	27	59
5th Street	Pacific Coast Highway to Coastline Drive	3100	35	9	19	42
Aldolfo Lopez Drive	West of Seal Beach Boulevard	1400	25	3	7	15
Basswood Street	South of Lampson Avenue	3900	25	6	14	29
Bolsa Avenue	PCH to Seal Beach Boulevard	5900	25	8	18	39
Golden Rain Road	East of Pacific Coast Highway	6600	25	9	19	42
Golden Rain Road	East of Pacific Coast Highway	6600	25	9	19	42
Golden Rain Road	East of Pacific Coast Highway	13200	25	14	31	66
Lampson Avenue	Seal Beach Boulevard to Basswood Street	17500	35	29	62	133
Lampson Avenue	Basswood Street to East City Limits	11000	35	21	45	97
Main Street	Electric Avenue to Pacific Coast Highway	5500	25	8	17	37
Marina Avenue	West City Limits to Pacific Coast Highway	5400	35	13	28	61
Pacific Coast Highway	North City Limits to 1st Street	46500	40	68	146	316
Pacific Coast Highway	1st Street to 5th Street	46000	35	54	117	252
Pacific Coast Highway	5th Street to Marina Drive	45300	35	54	116	250
Pacific Coast Highway	Marina Drive to Bolsa Avenue	44700	35	53	115	248
Pacific Coast Highway	Bolsa Avenue to Seal Beach Boulevard	45400	35	54	116	250
Pacific Coast Highway	South of Seal Beach Boulevard	41900	50	92	199	428
Rossmoor Center Way	West of Seal Beach Boulevard	3800	25	6	13	29
Seal Beach Boulevard	Rossmoor Center Way to St. Cloud Drive	35100	40	56	121	262
Seal Beach Boulevard	St. Cloud Drive to Lampson Avenue	46300	40	68	146	315
Seal Beach Boulevard	Lampson Avenue to I-405 Freeway	45400	40	67	144	311
Seal Beach Boulevard	I-405 Freeway to Golden Rain Road	40000	40	61	132	285
Seal Beach Boulevard	Golden Rain Road to Westminster Avenue	33800	40	55	118	255
Seal Beach Boulevard	Westminster Avenue to Aldolfo Lopez Drive	28000	45	59	127	274
Seal Beach Boulevard	Aldolfo Lopez Drive to Bolsa Avenue	26800	45	57	123	266
Seal Beach Boulevard	Bolsa Avenue to Pacific Coast Highway	21100	45	49	105	227
Seal Beach Boulevard	Pacific Coast Highway to Electric Avenue	7500	35	16	35	75
St. Cloud Drive	West of Seal Beach Boulevard	9300	25	11	24	52
Westminster Avenue	West City Limits to Road A	23100	45	52	112	241
Westminster Avenue	Road A to Seal Beach Boulevard	23200	45	52	112	241
Westminster Avenue	Seal Beach Boulevard to Bolsa Chica St.	24100	50	64	138	296
RTE 22	B - Jct. Rte 405	93000	65	250	539	1162
RTE 605	A - SB off to WB 22	38000	65	141	304	655
RTE 405(a)	A - Jct. Rte 22 east, Garden Grove Freeway	380000	65	706	1520	3276
RTE 405(b)	B - Seal Beach Jct. Rte 605	271000	65	560	1207	2601
RTE 405(c)	A - Seal Beach Jct. Rte 606	248000	65	532	1147	2471



Based on current traffic levels, the only areas of the City that experience noise levels in excess of 65 CNEL are along Pacific Coast Highway, Seal Beach Boulevard, Westminster Avenue, and all freeways. The remaining portions of the City experience noise levels generally of 60 CNEL or less. Much of the land uses along these roadways are commercial or business uses that are generally considered insensitive to noise. However, single-family and multi-family residential uses along these roadways are considered noise sensitive. In particular, the residential noise sensitive area can be defined as a “rear yard area” for the exterior environment and a “habitable room” for the interior environment.

The majority of the residential areas are protected from traffic noise by existing noise barriers. These existing noise barriers along major arterials consist of masonry block walls varying in height from approximately 5.0 to 8.0 feet. Existing noise barriers along freeways are significantly taller.

The residential area experiencing traffic noise levels greater than 65 CNEL but not protected by a noise barrier is along Pacific Coast Highway at the Surfside community north of Anderson Street. These residences consist of “side yards” or “patio areas” (a lesser defined residential exterior living area).

Aircraft flyovers occur over the City several times throughout the week. The aircraft are military flight operations generated from the Los Alamitos Joint Forces Training Base and the Long Beach Airport.

The Los Alamitos Joint Forces Training Base aircraft flights occur over residential and other noise sensitive land uses within the City. The CNEL noise contours were obtained from the 1994 Air Insulation Compatible Use Zone (AICUZ) Study (see Figure N-5 and Figure N-6). The AICUZ document was prepared by the California National Guard. Residential noise-sensitive areas north of the 405 Freeway experience aircraft-generated noise levels greater than 65 CNEL.

The 65 CNEL noise contour for Long Beach Airport is located approximately 3 miles outside the City of Seal Beach boundary. Therefore, aircraft noise generated from the Long Beach Airport will not have a significant impact on residential and other noise sensitive land uses within the City. These contours were obtained from the Long Beach Airport year 2000 quarterly report.



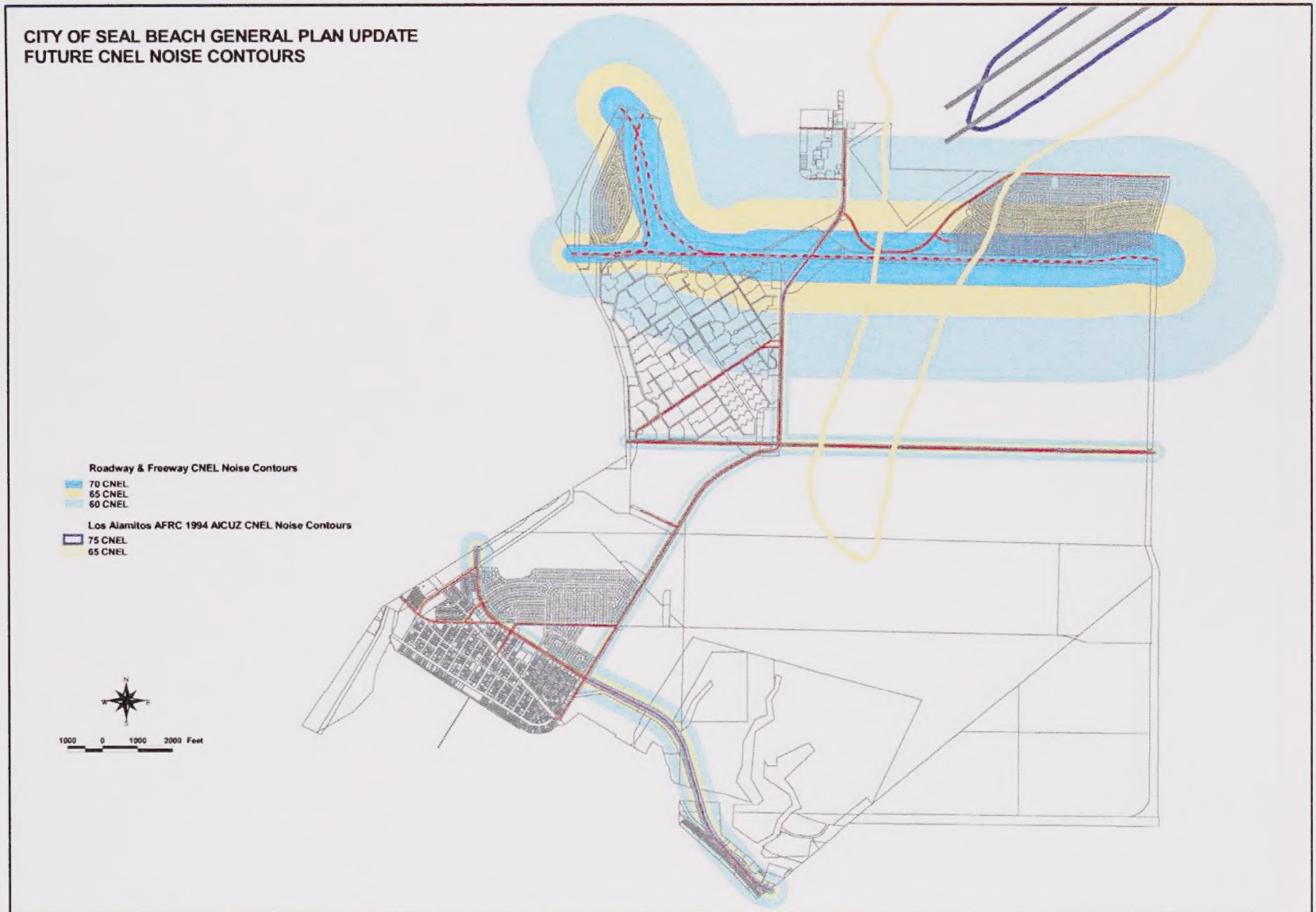


Figure N-5 – Existing CNEL Noise Contours



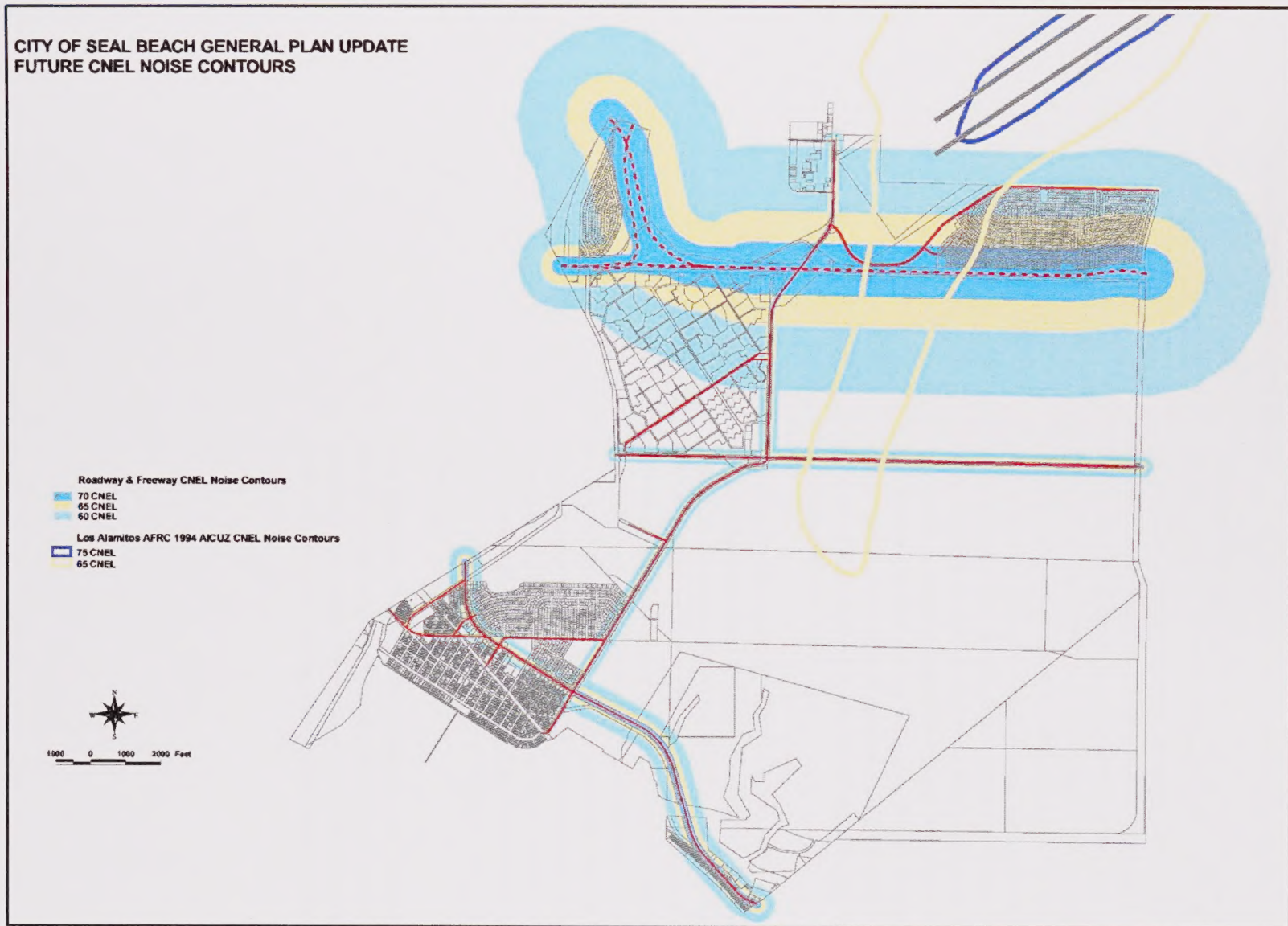


Figure N-6 – Future CNEL Noise Contours



Noise Sensitive Land Uses

The most noise sensitive land use in Seal Beach is residential development. It is considered especially noise sensitive because (1) considerable time is spent by individuals at home, (2) significant activities occur outdoors, and (3) sleep disturbance is most likely to occur in a residential area. Additionally, the City of Seal Beach has a number of public and private educational facilities that are considered noise sensitive. The location of residential areas, schools, and parks are shown on the General Plan. The distribution of these facilities varies from quiet residential areas to major arterial roadways. The majority of schools and parks experience noise levels below 65 CNEL. J.H. McGaugh Elementary School is impacted by Seal Beach Boulevard traffic noise of greater than 65 CNEL. Likewise, a portion of Edison Park is impacted by freeway traffic noise levels of greater 65 CNEL.

Noise contours represent lines of equal noise exposure, just as the contour lines on a topographic map are lines of equal elevation. The contours shown on the maps are the 70, 65, and 60 CNEL noise level for traffic noise contours. The noise contours presented should be used as a guide for land use planning. The 60 CNEL contour defines the Noise Referral Zone. This is the noise level for which noise considerations should be included when making land use policy decisions. The 65 CNEL contour describes the areas for which new noise sensitive developments will be permitted only if appropriate mitigation measures are included such that the standards contained in this Element are achieved.

The contours presented in this report are a graphic representation of the noise environment. Topography and intervening buildings or barriers have a very complex effect on the propagation of noise. This topographic effect is not included in these contours.



Future Noise Environment

Noise Sources and Levels

Future traffic noise levels have been computed using the FHWA Highway Traffic Noise Prediction Model. Projected traffic volumes for arterial roadways were obtained from the Circulation Element for the City prepared by Kunzman Associates. Projected traffic volumes for freeways were calculated at a 10% increase in volume. Table 4 and Figure N-6 on page 21 show the projected traffic noise contours to occur following buildout of the proposed general plan.

Based on future traffic levels the only areas of the City that experience noise levels in excess of 65 CNEL are along Pacific Coast Highway, Seal Beach Boulevard, Westminster Avenue, and all freeways. As mentioned previously, the remaining portions of the City experience noise levels generally of 60 CNEL or less with the exception of the areas discussed in the Existing Noise Sources and Levels Section of this element.

A 3-dBA increase in noise levels is often noticeable to residents. An increase of twice the existing traffic volume (ADT) results to an increase in traffic noise levels of 3 dBA. A roadway that has 3,000 ADT and goes up to 6,000 ADT will experience a CNEL increase of 3 dBA, as well as a roadway that goes from 20,000 ADT to 40,000 ADT. Obviously, the roadway with 40,000 ADT will be much louder than a 6,000 ADT roadway, but residents along either roadway will perceive the noise as increasing significantly.

Two areas experience an increase in noise of near or greater than 3 dB. The first area is at 1st Street between Marina Drive and Pacific Coast Highway. This area consists of single- and multi-family residences. There are sound walls at the single-family residences. These areas will experience future traffic noise levels of less than 65 CNEL. The second area is at Pacific Coast Highway at the north City limit to 1st Street. This area consists of commercial land use. These areas will experience future traffic noise levels of greater than 65 CNEL.



Table 4
Future Traffic Noise Contours (Year 2025)

Road Name	Segment	ADT	SPEED	70 CNEL	65 CNEL	60 CNEL	dB Increase
1st Street	Marina Drive to Pacific Coast Highway	7200	35	16	34	73	4.8
5th Street	Marina Drive to Pacific Coast Highway	5700	35	14	29	63	0.4
5th Street	Pacific Coast Highway to Coastline Drive	3400	35	10	21	44	0.4
Aldolfo Lopez Drive	West of Seal Beach Boulevard	1500	25	3	7	15	0.3
Basswood Street	South of Lampson Avenue	4300	25	7	14	31	0.4
Bolsa Avenue	PCH to Seal Beach Boulevard	8600	25	11	23	50	1.6
Golden Rain Road	East of Pacific Coast Highway	7250	25	10	21	44	0.4
Golden Rain Road	East of Pacific Coast Highway	7250	25	10	21	44	0.4
Golden Rain Road	East of Pacific Coast Highway	14500	25	15	33	70	0.4
Lampson Avenue	Seal Beach Boulevard to Basswood Street	20000	35	31	67	145	0.6
Lampson Avenue	Basswood Street to East City Limits	13500	35	24	52	111	0.9
Main Street	Electric Avenue to Pacific Coast Highway	6100	25	8	18	39	0.4
Marina Avenue	West City Limits to Pacific Coast Highway	5900	35	14	30	64	0.4
Pacific Coast Highway	North City Limits to 1st Street	85700	40	102	220	474	2.7
Pacific Coast Highway	1st Street to 5th Street	66600	35	70	150	323	1.6
Pacific Coast Highway	5th Street to Marina Drive	65900	35	69	149	321	1.6
Pacific Coast Highway	Marina Drive to Bolsa Avenue	65300	35	69	148	319	1.6
Pacific Coast Highway	Bolsa Avenue to Seal Beach Boulevard	60300	35	65	140	302	1.2
Pacific Coast Highway	South of Seal Beach Boulevard	54200	50	110	236	509	1.1
Rossmoor Center Way	West of Seal Beach Boulevard	4200	25	7	14	31	0.4
Seal Beach Boulevard	Rossmoor Center Way to St. Cloud Drive	36000	40	57	124	266	0.1
Seal Beach Boulevard	St. Cloud Drive to Lampson Avenue	47200	40	69	148	319	0.1
Seal Beach Boulevard	Lampson Avenue to I-405 Freeway	49500	40	71	153	329	0.4
Seal Beach Boulevard	I-405 Freeway to Golden Rain Road	42300	40	64	138	296	0.2
Seal Beach Boulevard	Golden Rain Road to Westminster Avenue	36100	40	57	124	267	0.3
Seal Beach Boulevard	Westminster Avenue to Aldolfo Lopez Drive	29100	45	61	130	281	0.2
Seal Beach Boulevard	Aldolfo Lopez Drive to Bolsa Avenue	27900	45	59	127	273	0.2
Seal Beach Boulevard	Bolsa Avenue to Pacific Coast Highway	21900	45	50	108	232	0.2
Seal Beach Boulevard	Pacific Coast Highway to Electric Avenue	8300	35	17	37	81	0.4
St. Cloud Drive	West of Seal Beach Boulevard	10200	25	12	26	56	0.4
Westminster Avenue	West City Limits to Road A	27100	45	58	124	268	0.7
Westminster Avenue	Road A to Seal Beach Boulevard	27200	45	58	125	269	0.7
Westminster Avenue	Seal Beach Boulevard to Bolsa Chica Street	25700	50	67	a144	309	0.3
RTE 22	B - Jct. Rte 405	102300	65	267	575	1238	0.4
RTE 605	A - SB off to WB 22	41800	65	150	324	698	0.4
RTE 405(a)	A - Jct. Rte 22 east, Garden Grove Freeway	418000	65	752	1620	3490	0.4
RTE 405(b)	B - Seal Beach Jct. Rte 605	298100	65	597	1286	2771	0.4
RTE 405(c)	A - Seal Beach Jct. Rte 606	272800	65	567	1222	2633	0.4



As previously discussed, the sources of noise in Seal Beach can be divided into two basic categories: transportation sources (primarily traffic) and non-transportation sources. A local government has little direct control of transportation noise at the source. State and federal agencies have the responsibility to control the noise from the source, such as vehicle noise emission levels. The most effective method the City has to mitigate transportation noise is through reducing the impact of the noise onto the community (e.g., noise barriers and site design review). Mitigation through the design and construction of a noise barrier (wall, berm, or combination wall/berm) is the most common way of alleviating traffic noise impacts.

The effect of a noise barrier is critically dependent on the geometry between the noise source and the receiver. A noise barrier effect occurs when the “line of sight” between the source and receiver is penetrated by the barrier. The greater the penetration, the greater the noise reduction.

Noise/Land Use Compatibility

Noise concerns should be incorporated into land use planning to reduce future noise and land use incompatibilities. This is achieved by establishing standards and criteria that specify acceptable limits of noise for various land uses throughout the City. These criteria are designed to integrate noise considerations into land use planning to prevent noise/land use conflicts and used to assess the compatibility of proposed land uses with the noise environment (Figure N-3) on page 9.

The most effective method to control community noise impacts from non-transportation noise sources is through application of the Community Noise Ordinance. The City of Seal Beach currently has a noise ordinance. Continued enforcement of the ordinance will provide noise control for noise-sensitive land uses.



Goals and Objectives

Goals

A beach town should be a quiet place where one can hear the surf and the wind. Reduce the level of noise, so that it causes less human stress or health damage, is not as likely to interfere with human activities such as sleep, work, play, or thought, and allow the peaceful existence of wildlife and pets.

Objectives

The identification in quantitative, numerical terms of existing and projected noise levels, noise sources, and noise-sensitive land uses in the City of Seal Beach.

Establishment of appropriate criteria and guidelines for desirable sound levels and the identification of means available to achieve those sound levels in the City of Seal Beach.

Direction for an implementation program that may be used to achieve and maintain a minimal noise environment.

Maintain the relatively quiet areas of Seal Beach by regulating existing and potential noise sources, especially in public open space and the designated Wildlife Refuge areas.

Inform the citizenry of Seal Beach of real and potential noise hazards, both physical and psychological.

The city shall encourage a long-term development pattern that minimizes noise conflicts through planning and zoning.

The city shall require the construction of barriers to mitigate sound emissions where necessary and feasible to protect outdoor noise sensitive land uses.

The city shall require the inclusion of noise mitigation measures in the design of new roadway projects in Seal Beach.

The city shall minimize potential transportation noise through proper design of street circulation, coordination of routing, and other traffic control measures.



The city shall ensure the effective enforcement of city, state and federal noise level standards by all appropriate city divisions. The city shall provide quick response to complaints and rapid abatement of noise nuisances within the scope of the city's police powers.



The Plan for Control and Management of Noise

In order to achieve the goals and objectives of the Noise Element, an effective implementation program developed within the constraints of the City's financial and staffing capabilities is necessary. The underlying purpose is to reduce the number of people exposed to excessive noise and to minimize the future effect of noise in the City. The following are the actions that the City should consider implementing to control the impacts of noise in Seal Beach.

- ***Issue 1 - Transportation Noise Control*** The most efficient and effective means of controlling noise from transportation systems is reducing noise at the source. However, since the City has little direct control over source noise levels because of state and federal preemption (e.g., State Motor Vehicle Noise Standards), policies should be focused on reducing the impact of the noise on the community. Cooperative efforts with state and federal offices are essential.

Encourage the use of walls and berms in the design of residential or other noise sensitive land uses that are adjacent to major roads, commercial, or industrial areas.

Provide for continued evaluation of truck movements and routes in the City to provide effective separation from residential or other noise sensitive land uses.

Encourage the enforcement of State Motor Vehicle noise standards for cars, trucks, and motorcycles through coordination with the California Highway Patrol and Seal Beach Police Department.

Aircraft noise standards shall be enforced by the local Airport Environ Land Use Plan (AELUP), which is regulated by the local Airport Land Use Commission (ALUC) and the Federal Aviation Administration (FAA).

- ***Issue 2 - Noise and Land Use Planning Integration.*** Community noise considerations are to be incorporated into land use planning. These measures are intended to prevent future noise and land-use incompatibilities.

The criteria shown previously in Figure N-3 are used to assess the compatibility of proposed land uses with the noise environment. These criteria are the basis for review of pro-



jects to ensure compatibility between land-use and noise environment. These guidelines are the primary tool that will allow the City to ensure noise integrated planning for compatibility between land uses and outdoors.

Incorporate noise reduction features during site planning to mitigate anticipated noise impacts on affected noise sensitive land uses. The noise referral zones (areas exposed to noise levels greater than 60 CNEL) can be used to identify locations of potential conflict. New developments will be permitted only if appropriate mitigation measures are included such that the standards contained in this Element or the ordinance is met.

Enforce the State of California Uniform Building Code that specifies that the indoor noise levels for residential living spaces not exceed 45 dB LDN/CNEL due to the combined effect of all noise sources. The state requires implementation of this standard when the outdoor noise levels exceed 60 dB LDN/CNEL. The Noise Referral Zones (60 CNEL) can be used to determine when this standard needs to be addressed. The Uniform Building Code (specifically, the California *Administrative Code*, Title 24, Part 6, Division T25, Chapter 1, Subchapter 1, Article 4, Sections T25-28) requires that "Interior community noise levels (CNEL/LDN) with windows closed, attributable to exterior sources shall not exceed an annual CNEL or LDN of 45 dB in any habitable room." The code requires that this standard be applied to all new hotels, motels, apartment houses, and dwellings other than detached single-family dwellings. The City can and is encouraged to reduce the noise standard from 45 CNEL to 40 CNEL. Additionally, the standard should be applied to single-family homes.

- ***Issue 3 - Community Noise Control for Non-Transportation Noise Sources.*** The focus of control of noise from non-transportation sources is the Community Noise Ordinance. The ordinance can be used to protect people from noise generated on adjacent properties.

The purpose of the ordinance is to protect people from non-transportation-related noise sources such as music, machinery and pumps, air conditioners, landscaping and gardening activities, and truck traffic on private property. The Noise Ordinance does not apply to motor vehicle noise on public streets, but it does apply to vehicles on private property. The Noise Ordinance is designed to protect quiet resi-



dential areas from stationary noise sources. The noise levels encouraged by the ordinance are typical of a quiet residential area.

Continue to enforce the community Noise Ordinance. The most effective method to control community noise impacts from non-transportation noise sources is through application of the community noise ordinance.

Require that new commercial projects proposed for development near existing residential land use demonstrate compliance with the City Noise Ordinance prior to approval of the project.

All new residential projects to be constructed near existing non-transportation noise sources (including but not limited to commercial facilities, public parks with sports activities) must demonstrate via an acoustical study conducted by a Registered Engineer that the indoor noise levels will be consistent with the limits contained in the noise ordinance.

Require construction activity to comply with limits established in the City Noise Ordinance.

Designate one agency in the City to act as the noise control coordinator. This will ensure the continued operation of noise enforcement efforts of the City.



Additional Noise Assessment

An acoustical study on traffic noise in the Surfside Colony community was conducted by Wieland Associates, Inc. on July 18, 2002. The additional analysis is hereby incorporated into this Noise Element as an addendum to this section.



Glossary

A-WEIGHTED SOUND LEVEL. The sound pressure level in decibels as measured on a sound level meter using the A-Weighted filter network. The A-Weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the response of the human ear. A numerical method of rating human judgments of loudness.

AMBIENT NOISE LEVEL. The composite of noise from all sources near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.

COMMUNITY NOISE EQUIVALENT LEVEL (CNEL). The average equivalent A-Weighted sound level during a 24-hour day, obtained after addition of five (5) decibels to sound levels in the evening from 7:00 p.m. to 10:00 p.m. and after addition of ten (10) decibels to sound levels in the night before 7:00 a.m. and after 10:00 p.m.

DAY-NIGHT AVERAGE LEVEL (LDN). The average equivalent A-Weighted sound level during a 24-hour day, obtained after addition of ten (10) decibels to sound levels in the night before 7 a.m. and after 10 p.m.

DECIBEL (dB). A unit for measuring the amplitude of a sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micro-pascals.

dB(A). A-weighted sound level (see definition above)

EQUIVALENT SOUND LEVEL (LEQ). The sound level corresponding to a steady noise level over a given sample period with the same amount of acoustic energy as the actual time varying noise level. The energy average noise level during the sample period.

FREQUENCY. The number of times per second that a sound pressure signal oscillates about the prevailing atmosphere pressure. The unit of frequency is the hertz. The abbreviation is Hz.



INTRUSIVE NOISE. That noise that intrudes over and above the ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, time of occurrence, and tonal or informational content as well as the prevailing ambient noise level.

L10. The A-Weighted sound level exceeded 10 percent of the sample time. Similarly L50, L90, L99, etc.

NOISE. Any unwanted sound or sound that is undesirable because it interferes with speech and hearing, or is intense enough to damage hearing, or is otherwise annoying. The State Noise Control Act defines noise as “excessive undesirable sound”.

NOISE ATTENUATION. The ability of a material, substance, or medium to reduce the noise level from one place to another or between one room and another (specified in decibels).

NOISE EXPOSURE CONTOURS. Lines drawn around a noise source indicating constant or equal level of noise exposure. CNEL and LDN are typical metrics used.

NOISE REFERRAL ZONES. Such zones are defined as the area within the contour defining a CNEL level of 55 decibels. It is the level at which state or federal laws and standards related to land use become important and, in some cases, pre-empt local laws and regulations. Any proposed noise sensitive development which may be impacted by a total noise environment of 55 dB CNEL or more should be evaluated on a project specific basis.

NOISE SENSITIVE LAND USE. Those specific land uses that have associated indoor and/or outdoor human activities that may be subject to stress and/or significant interference from noise produced by community sound sources. Such human activity typically occurs daily for continuous periods of 24 hours or is of such a nature that noise is significantly disruptive to activities that occur for short periods. Specifically, noise sensitive land uses include: residences of all types, hospitals, places of worship and schools.

SOUND LEVEL (NOISE LEVEL). The weighted sound pressure level obtained by use of a sound level meter hav-



ing a standard frequency-filter for attenuating part of the sound spectrum.

SOUND LEVEL METER. An instrument, including a microphone, an amplifier, output meter, and frequency weighting networks for the measurement and determination of noise and sound levels.



Addendum to Noise Element

Acoustical Study of Traffic and Noise

by

Wieland Associates, Inc.

dated July 18, 2002





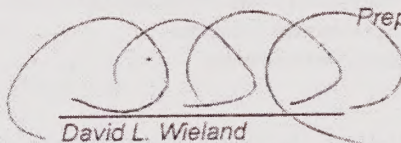
ACOUSTICAL STUDY
OF TRAFFIC NOISE
IN THE
SURFSIDE COMMUNITY

Project File 335-02
July 18, 2002

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Appendix I. Noise Measurements
Appendix II. Noise Barrier Analysis

Wieland Associates, Inc.



Introduction

The purpose of this study is to identify the noise environment currently being experienced within the Surfside community as a result of traffic on Pacific Coast Highway, and to identify measures that can be taken to reduce the traffic noise. For this project, the study area is the homes adjacent to Surfside Avenue between Phillips Street and Anderson Street. Figure 1 (page 2) identifies the location of the study area. It should be noted that the proposed future realignment of Pacific Coast Highway has not been considered in this study.

Noise Descriptors

The following sections briefly identify the noise descriptors that will be used throughout this study.

Decibels

Sound pressures can be measured in units called microPascals. However, expressing sound levels in terms of microPascals would be very cumbersome since it would require a wide range of very large numbers. For this reason, sound pressure levels are described in logarithmic units of ratios of actual sound pressures to a reference pressure squared. These units are called bels. In order to provide a finer resolution, a bel is subdivided into 10 decibels, abbreviated dB.

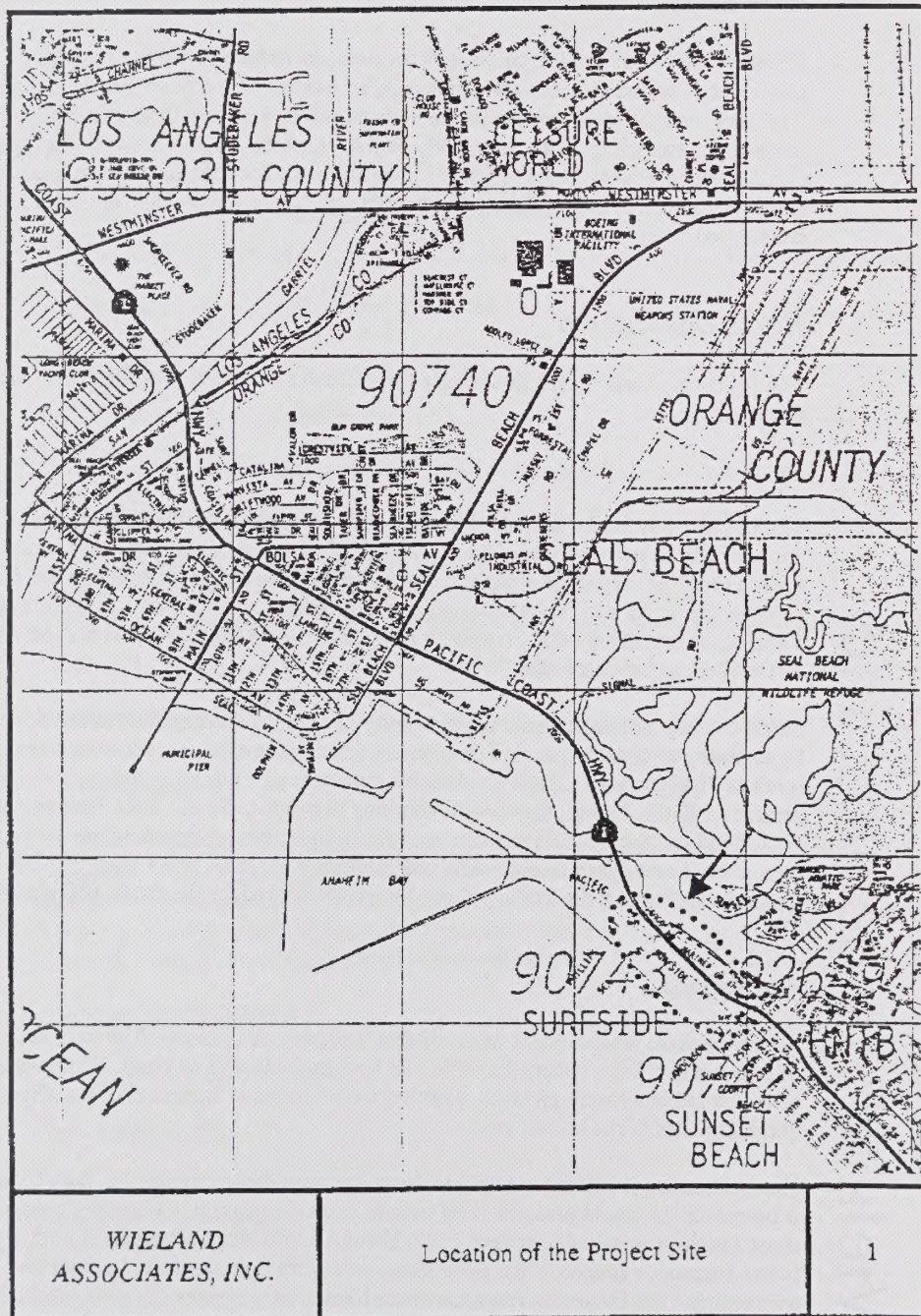
Since decibels are logarithmic units, sound pressure levels cannot be added or subtracted by ordinary arithmetic means. For example, if one automobile produces a sound pressure level of 70 dB when it passes an observer, two cars passing simultaneously would not produce 140 dB. In fact, they would combine to produce 73 dB. This same principle can be applied to other traffic quantities as well. In other words, doubling the traffic volume on a street or the speed of the traffic will increase the traffic noise level by 3 dB. Conversely, halving the traffic volume or speed will reduce the traffic noise level by 3 dB.

A-Weighting

Sound pressure level alone is not a reliable indicator of loudness. The frequency or pitch of a sound also has a substantial effect on how humans will respond. While the intensity of the sound is a purely physical quantity, the loudness or human response depends on the characteristics of the human ear.

Human hearing is limited not only to the range of audible frequencies, but also in the way it perceives the sound pressure level in that range. In general, the healthy human ear is most sensitive to sounds between 1,000 Hz and 5,000 Hz, and perceives both higher and lower frequency sounds of the same magnitude with less intensity. In order to approximate the frequency response of the human ear, a series of sound pressure level





adjustments is usually applied to the sound measured by a sound level meter. The adjustments, or weighting network, are frequency dependent.

The A-scale approximates the frequency response of the average young ear when listening to most ordinary everyday sounds. When people make relative judgments of the loudness or annoyance of a sound, their judgments correlate well with the A-scale sound levels of those sounds. A range of noise levels associated with common in- and outdoor activities is shown in Figure 2 (page 4).

The A-weighted sound level of traffic and other long-term noise-producing activities within and around a community varies considerably with time. Measurements of this varying noise level are accomplished by recording values of the A-weighted level during representative periods within a specified portion of the day. The value recorded for this study is the energy equivalent (or average) sound level, denoted as Leq. Readings of this value are recorded to provide representative samples of the noise during the time period being examined (i.e., peak traffic period, morning, afternoon, and night, etc.).

Community Noise Equivalent Level (CNEL)

It is recognized that a given level of noise may be more or less tolerable depending on the duration of exposure experienced by an individual. There are numerous measures of noise exposure that consider not only the A-level variation of noise but also the duration of the disturbance. The State Department of Aeronautics and the California Commission on Housing and Community Development have adopted the community noise equivalent level (CNEL). This measure weights the average noise levels for the evening hours (7:00 p.m. to 10:00 p.m.), increasing them by 5 dB, and weights the late evening and early morning hour noise levels (10:00 p.m. to 7:00 a.m.) by 10 dB. The daytime noise levels are combined with these weighted levels and are averaged to obtain a CNEL value. Figure 3 (page 5) indicates the outdoor CNEL at typical locations.

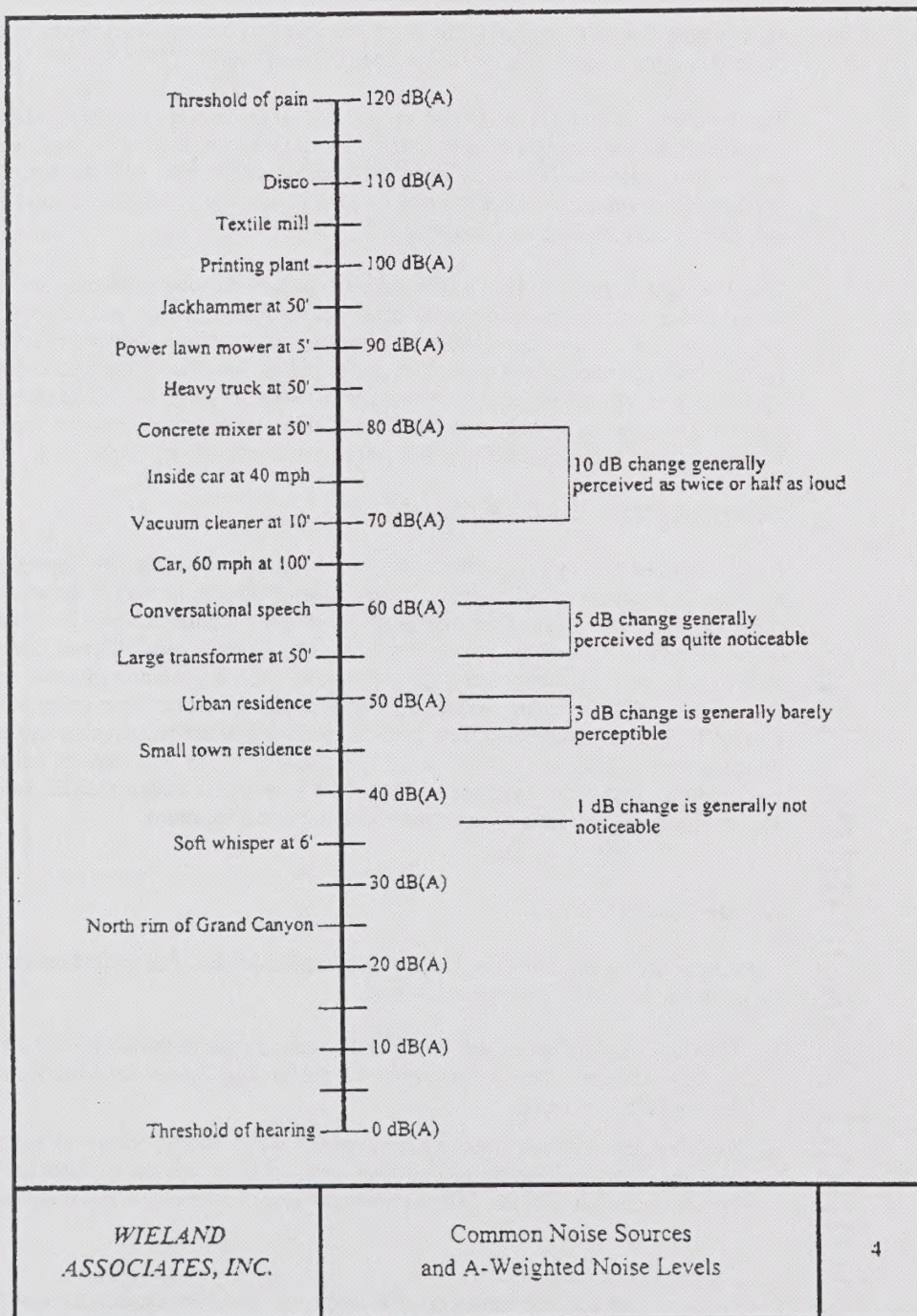
Noise Design Goal

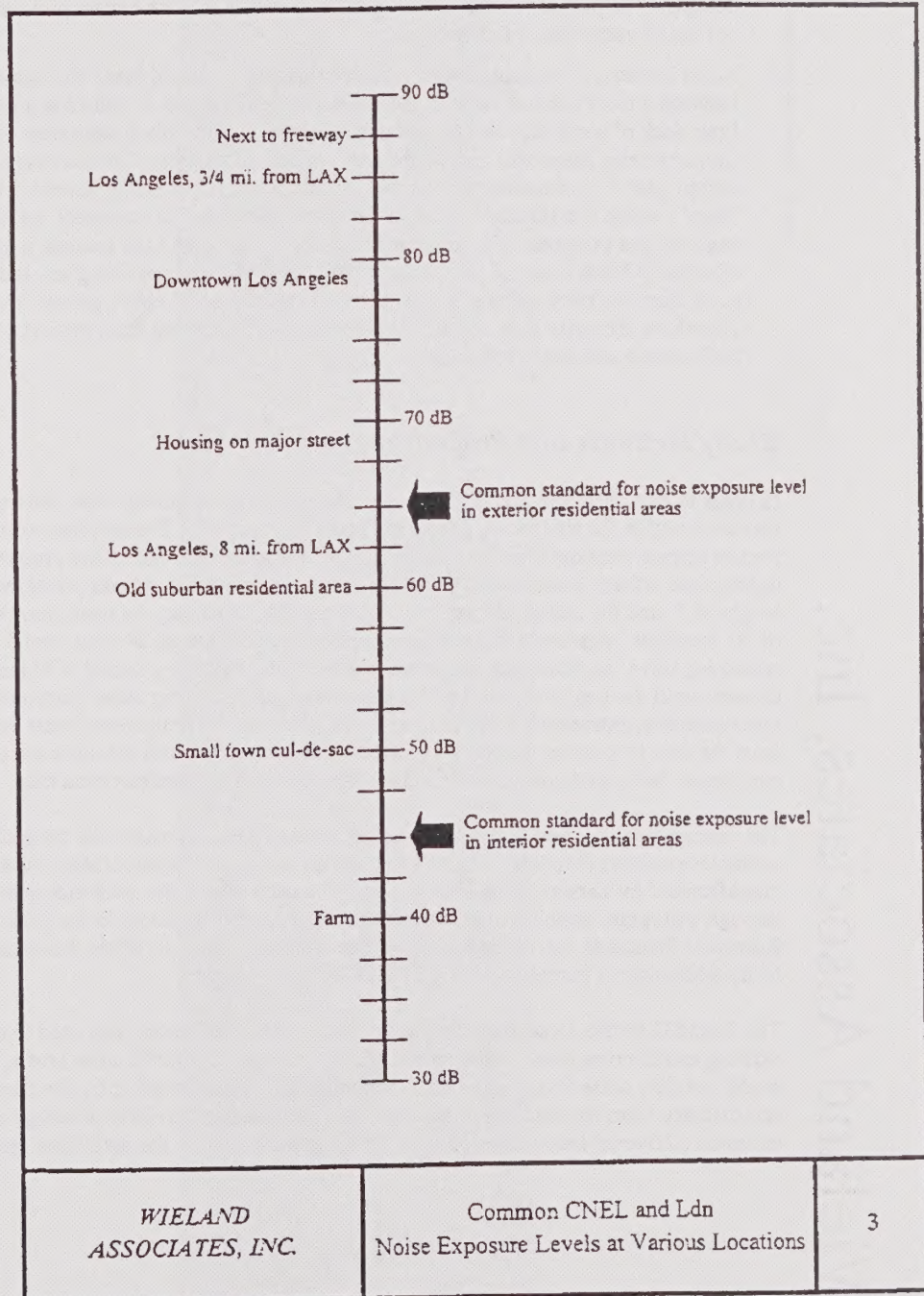
Since there are no standards for this privately-funded project, it is recommended that the following noise design goals be considered:

1. The CNEL should not exceed 65 dB at the second floor decks of units adjacent to Surfside Avenue.¹ This is consistent with the Orange County standards for new residential construction.
2. Noise barriers, if constructed as a result of this study, should reduce the exterior noise level by at least 5 dB at the second floor decks of units adjacent to Surfside Avenue. This is consistent with the Caltrans noise abatement criteria for new soundwall

¹ Mitigating to 65 dB at second floor decks will ensure an even lower noise exposure at ground floor locations. It is not practical to provide mitigation for levels above the second floor.







designs. The purpose of this design goal is to ensure that the barrier provides a noticeable reduction in traffic noise.

3. Noise barriers, if constructed as a result of this study, should break the line-of-sight between a truck exhaust stack in the nearest travel lane and a resident at a second floor deck of a unit adjacent to Surfside Avenue. Again, this is consistent with the Caltrans noise abatement criteria for new soundwall designs. The purpose of this design goal is to minimize annoyance. Traffic noise is generally perceived as a "hum", which is primarily a result of tire interactions on the pavement, air turbulence, engines, and exhausts. If a noise barrier is not constructed high enough, it will effectively block much of this background "hum" without providing any reduction in noise from the truck exhaust stacks that are typically 11½' above ground level. Therefore, the noise from these exhaust stacks will stand out from the rest of the traffic noise and create annoyance.

Study Methods and Procedures

In order to document the existing noise environment, measurements were obtained at five locations within the study area. (Refer to Figure 4 on page 7.) The ambient noise level measurements were obtained by positioning the sound level meter on the property at an appropriate setback from Pacific Coast Highway. The microphone was positioned at a height of 5' and the instrument was calibrated prior to obtaining the measurement. At two of the locations, measurements were obtained over a continuous 24-hour period. At the remaining three locations, the measurements were obtained for a period of at least 20 minutes until the Leq level stabilized at a constant value. During these short-term measurements, extraneous noise sources (such as sirens and helicopters) were excluded from the data by placing the sound level meter on "standby" until the noise event was concluded. Refer to Appendix I for a complete listing of the measurement data.

The instrumentation used to obtain the noise measurements consisted of integrating sound level meters (Models 712 and 820), and an acoustic calibrator (Model CAL200) manufactured by Larson Davis Laboratories. The accuracy of the calibrator is maintained through a program established by the manufacturer, and is traceable to the National Bureau of Standards. All instrumentation meets the requirements of the American National Standards Institute (ANSI) S1.4-1971.

The Sound32 traffic noise prediction model developed by Caltrans was used to model existing traffic noise levels and to predict future year (2025) traffic noise levels. This model predicts noise levels based on traffic volumes, speeds, truck mix, site conditions, and distance from the roadway to the receptor. The California reference energy mean emission (Calveno) levels developed by Caltrans were used in the prediction model.



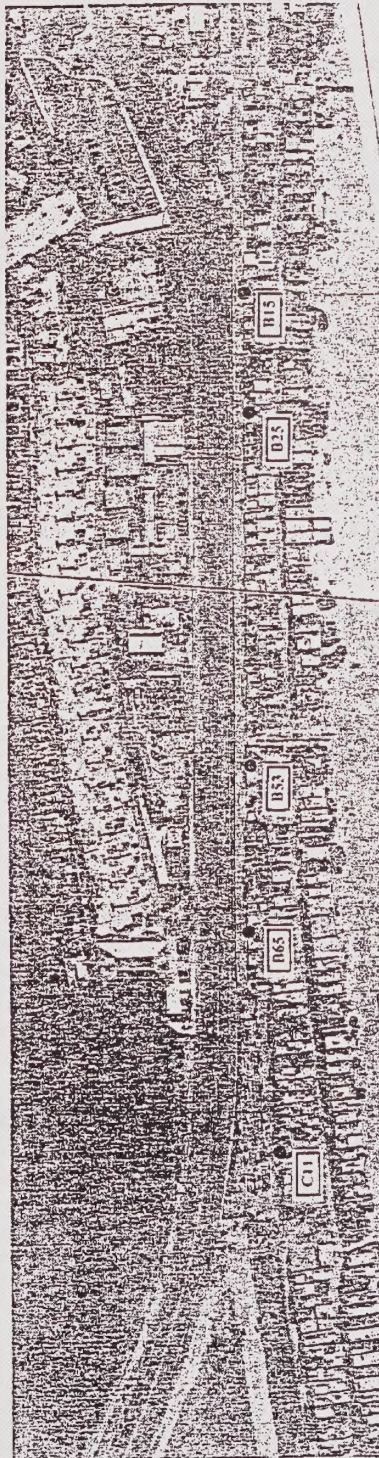


Figure 4 Location of the Noise Measurement Positions



Existing Noise Environment

As indicated in the previous section, five measurement locations were used in this study to characterize the existing noise environment. These locations were selected as being representative of other residences in their vicinity. To calibrate the traffic noise model to existing conditions, traffic counts were conducted concurrently with the limited noise measurements. These counts were obtained by videotaping traffic on Pacific Coast Highway in the vicinity of the sound level meters, and then reviewing the tape to identify the number and type of vehicles in each lane. Vehicles were classified as autos, medium (i.e., 2-axle) trucks and heavy (i.e., 3+-axle) trucks as required for input into the traffic noise model.

Using the measurement data provided in Appendix I and the traffic count data obtained at the site, the Sound32 traffic noise prediction model developed by Caltrans was calibrated to reflect the existing noise levels at the measurement locations. With the calibrated traffic model, an analysis was conducted to estimate the CNEL at each of the measurement locations in the study area. The results of our analysis are summarized as follows:

Location	Estimated Existing CNEL
Unit C11	66 dB
Unit B65	71 dB
Unit B53	71 dB
Unit B25	72 dB
Unit B15	70 dB

Future Noise Environment

Caltrans has indicated that the average daily traffic volume (ADT) on Pacific Coast Highway is expected to increase from its present level of 38,000 to a total of 48,000 vehicles per day by the year 2025. Using this traffic data, as well as the calibrated model developed for this project, an analysis was conducted to estimate the future traffic noise environment that will occur in the study area. The results of our analysis for year 2025 conditions are summarized as follows:

Location	Estimated Future CNEL
Unit C11	67 dB
Unit B65	72 dB
Unit B53	72 dB
Unit B25	73 dB
Unit B15	71 dB

These levels are 1 dB higher than existing traffic noise levels.



Recommendations

As indicated in the previous section, the existing traffic noise environment exceeds the recommended design goal of 65 dB by 1 to 7 dB. By the year 2025, this exceedance is expected to increase by another 1 dB. To mitigate the traffic noise, and to comply with the noise design goals established for this project, the following mitigation measures are recommended:

1. A noise barrier should be constructed along the property line of the Surfside community as shown in Figure 5 (page 10). It consists of approximately 1,704 linear feet of 14'-high barrier followed by approximately 622 linear feet of 16'-high barrier. The barrier heights indicated in the figure are relative to the "PLTR" and "FNC" elevations surveyed by Jones, Cahl & Associates (Reference 1).
2. The noise barrier should be constructed of a material that provides a minimum surface density of 4 pounds per square foot. To minimize the aesthetic impact of the noise barrier, the overall recommended height shown in Figure 5 (page 10) can be achieved with a combination of materials (e.g., concrete block and glass panels), as long as each material complies with the recommended surface density requirement.
3. The noise barrier should be a continuous structure without gaps (including drainage holes) or gates.
4. To minimize the buildup of noise in the Surfside community due to reverberation, the barrier should be constructed with a sound-absorptive material facing the homes. This can be achieved by constructing the barrier out of a sound-absorptive material, or by attaching a sound-absorptive material to the face of the barrier. Refer to Enclosure 1 for product literature.

Consideration should also be given to the potential impact that traffic noise reflections off the recommended noise barrier will have on the properties across Pacific Coast Highway, and across Surfside Avenue near Anderson Street. Any potential impact can be minimized by constructing the barrier with a sound-absorptive material (as described in Item 4 above) facing Pacific Coast Highway.

Alternatives to the Recommended Noise Barrier

The noise barrier recommended in the previous section will achieve all three design goals established for this project. This will result in a noticeable reduction in traffic noise and an exterior noise environment that is generally considered to be acceptable. Recognizing that a 14'- to 16'-high noise barrier may have unacceptable economic and aesthetic impacts, the following sections briefly discuss the noise barriers needed to achieve each of the individual design goals.



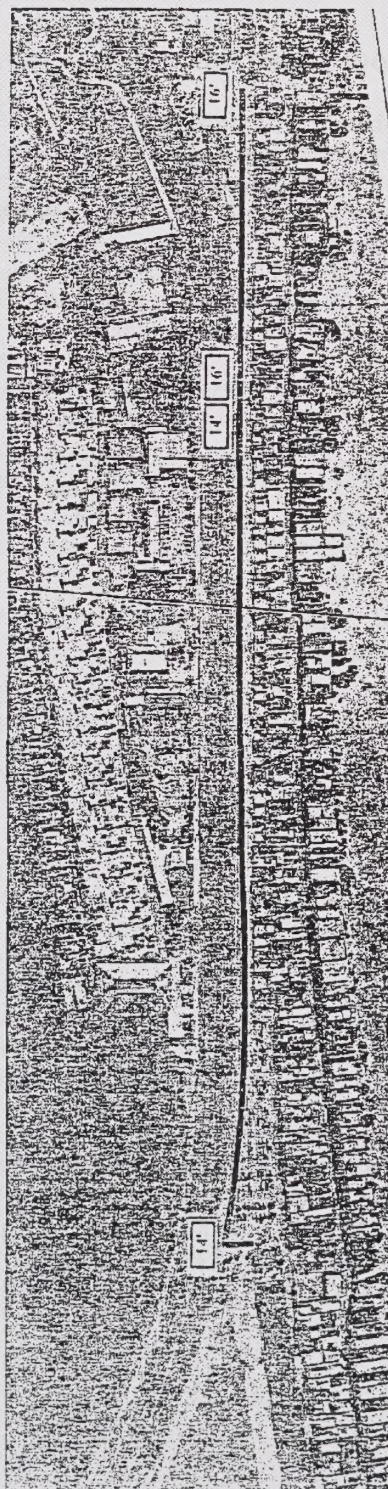


Figure 5. Location of Recommended Noise Barriers



CNEL of 65 dB or Less

Referring to Figure 5 (page 10) and starting from the north end and working towards the south, a CNEL of 65 dB or less can be achieved with a noise barrier consisting of 301 linear feet of 10'-high barrier, followed by 1,300 linear feet of 12'-high barrier, and then 725 linear feet of 14'-high barrier. This barrier will also provide 5 dB or more of noise reduction, but will not break the line-of-sight to the truck exhaust stacks at homes towards the north and south ends of the study area.

Minimum 5 dB of Noise Reduction

Referring to Figure 5 (page 10) and starting from the north end and working towards the south, 5 dB or more of noise reduction can be achieved with a noise barrier consisting of 1,804 linear feet of 10'-high barrier, followed by 522 linear feet of 12'-high barrier. This barrier will reduce the CNEL to 65 dB or less at only a few homes near the north end of the study area. The line-of-sight to the truck exhaust stacks will not be broken at any residence in the study area.

Break Line-of-Sight to Truck Exhaust Stacks

This is the recommended noise barrier, as shown in Figure 5 (page 10).

Conclusion

Measurements obtained at the site indicated that the existing traffic noise exposure within the Surfside community exceeds the recommended design goal of 65 dB by about 1 to 7 dB. This impact can be mitigated by constructing a 14'- to 16'-high barrier along the property line. Such a barrier will reduce both the existing and future traffic noise exposures to 65 dB or less at second floor locations, will provide 5 dB or more of noise reduction, and will break the line-of-sight to truck exhaust stacks in the nearest traffic lane. It is noted, however, that such a high wall has the potential for creating a reverberant environment within the Surfside community, and for increasing traffic noise exposures at properties on the northeast side of the barrier. This potential impact can be minimized by either constructing the barrier of sound-absorptive materials, or by attaching such materials to either or both sides of the barrier.

Wieland Associates, Inc.



References

1. Surfside Colony Topography prepared by Jones, Cahl & Associates; June 18, 2002.
2. Preliminary Plans, Seal Beach Regional Trail, Pacific Coast Highway from Seal Beach Boulevard to Anderson Street, prepared by W. G. Zimmerman Engineering, Inc; no date.

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City of Seal Beach



Cultural Resources Element

Cultural Resources Element

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Introduction

This Element of the Seal Beach General Plan discusses the purpose and function of preserving archaeological and historical resources, describes methods for protecting these resources, and provides local policies to guide the implementation of cultural resource preservation, beyond the protections afforded by applicable federal (National Environmental Policy Act), state (California Environmental Quality Act) and local laws.

Background

Anaheim Bay, the San Gabriel estuary, and the Seal Beach area have supported several cultures over the past 10,000 years. Archaeological and historical sites provide tangible evidence of Seal Beach's cultural heritage. Knowledge of the way of life of Seal Beach's prehistoric and historic residents enhances the quality of life of the City's present and future inhabitants. These sites are priceless non-renewable cultural resources. They have the potential to provide vivid educational opportunities for our children and for succeeding generations. They are part of the material culture of local Native Americans and provide important "laboratories" for scientific research. Due to development of the coastal strip, few archaeological sites remain, and those that do demand our protection.

Archaeological resources are defined as the material remains of an area's prehistorical (aboriginal/Native American) or historical (European and Euro-American) human activity. "Prehistoric" sites date from the time of early human occupation to the arrival of Juan Cabrillo in 1542. "Historic" sites postdate Cabrillo and include periods of Spanish, Mexican, and American settlement.

Prehistoric occupation of the Seal Beach area was associated with the Tongva (Gabrielino) Native Americans, who inhabited much of northern Orange County. The name "Gabrielino" identifies those people who came under the control of the Mission at San Gabriel. The Tongva were known for high population densities, complex social organization, and highly developed maritime economies. The Tongva in the area were on the extreme southern flank of extensive tribal territory that extended into Ventura County to the north and San Bernardino



County to the east. The tribes maintained a common language, material culture, and ceremonial/political system. In addition to the Tongva, it is also understood that the Juaneño Native Americans (the neighboring tribe to the south) also frequented the Seal Beach area.

By the time the Spanish arrived, the Tongva and Juaneño belief in the great mythical chief Chin-ngich-nish and the associated toloache cult had spread to neighboring groups. As part of this religion, human remains were generally wrapped in a blanket for three days and then burned along with most of the deceased's personal possessions. The Spanish abruptly terminated these activities, and burial in the ground became standard practice.

Tongva coastal villages have been identified in Long Beach, Seal Beach, Huntington Beach, and Costa Mesa. Identified within Seal Beach, a Tongva community named Motuuchey, also known as "El Piojo [the Louse]," was located at the former Anaheim Landing area. Identified archaeological resources within the City of Seal Beach are primarily located on the Naval Weapons Station, the Hellman Ranch property, and potentially on the Boeing property.

The historic settlement of the Seal Beach area began in the 1780s with the assignment of a land grant. This 300,000-acre grant became a rancho known as Los Alamitos. Due to the presence of the Santa Ana River, the land was suitable for cattle grazing and agriculture.

When the Rancho era ended with the end of Mexican rule after the Mexican War of 1846-1848, the land was still farmed, but many of the ranchers went bankrupt. In 1864 much of the land was purchased by Jotham Bixby, and a portion of the land was purchased by a group of German immigrants who formed an agricultural colony called Anaheim. They created a port they called Anaheim Landing from which they could ship their produce to markets. This was the first port in what is today known as Orange County and eventually developed into downtown Seal Beach.

In the early 1900s the area transitioned from use as a port to a resort community. In 1903 the area was subdivided and named "Bay City." The next year, the Pacific Electric Railroad "Red Cars" arrived, connecting Bay City to Los Angeles and allowing easy access to the community. Today the Red Car Museum is located on the old Pacific Electric Right-Of-Way in a rare Pa-



cific Electric tower car built in 1925. The museum displays photographs of early Seal Beach and Indian artifacts collected locally, and provides a reference library of local history. The pier, the beach, and a roller coaster were some of the amenities that attracted tourists. Built in 1906, the pier was the longest pier south of San Francisco. A bath house with a dancing pavilion, a store, billiards, and bowling facilities was built in 1913. In 1915, Bay City was incorporated with a population of 250, and it became known as Seal Beach.

By the 1920s, the town was at its height as a resort community. The success prompted a flurry of construction in the area. The town continued to grow until the Great Depression. The pier was cut in half when hurricane winds hit in 1939 and was rebuilt.

Subsequently World War II brought significant changes to the area when military facilities were placed all around Seal Beach and, ultimately, a Naval Weapons Station was built in town. With the influx of military personnel the town experienced a second major boom in construction. The town continued to expand in the 1950s, including the development of Leisure World toward the end of the decade. In 1983 the pier was again battered in the storms that year. It was again rebuilt and suffered fire and earthquake damage in 1992 and fire damage in 1994.

Today Seal Beach is again a beach tourist destination with a population of more than 24,000. The City is continuing to build out a few undeveloped areas. Historic resources within the City of Seal Beach include the “Old City Hall” located along 8th Street, which is on the National Register of Historic Places. In addition, the State of California recognizes the historic significance of “Anaheim Landing,” an early port facility used in the late 1800s to early 1900s by Anaheim farmers to ship produce and livestock. A state historic marker regarding Anaheim Landing is located at Seal Beach Boulevard and Electric Avenue. Locally listed historic structures include the Krenwinckle House and the Proctor House. Although not officially listed, many structures built during the history of Seal Beach contribute to the community’s identity.



Statutory Requirements

The California *Government Code* allows the development of optional General Plan Elements. Section 65303(j) of the *Government Code* previously permitted the inclusion of “*A historical preservation element for the identification, establishment and protection of sites and structures of architectural, historical, archaeological or cultural significance, including significant trees ..., and other plant materials.*”

Government Code §65303 was subsequently amended, and currently does not outline specific optional elements of a General Plan that a city may determine to utilize. The City of Seal Beach recognizes that the Cultural Resources Element is an optional element of the General Plan under the current provisions of *Government Code* §65303.



Related Plans and Programs

There are a number of existing plans, programs, and regulations that are related to the goals and policies contained in the Cultural Resources Element. These plans, programs, and regulations are described below and have been enacted by local, state, or federal agencies.

California Environmental Quality Act (CEQA) and Guidelines

The California Environmental Quality Act (CEQA) was adopted by the state legislature in response to a public mandate for thorough environmental analysis of projects that might affect the environment. The provisions of state law and environmental review procedures are described in the CEQA Statutes and the CEQA Guidelines. Implementation of CEQA ensures that during the decision-making process for development, City officials and the general public will be able to identify and assess the environmental impacts associated with private and public development projects. CEQA requires evaluation of potential project impacts to historic, archaeological, and paleontological resources and provides guidance regarding standards to be used to determine significance of identified potential impacts.

Federal and State Mandates

There are numerous federal and state mandates, legislation, guidelines, and Native American policies concerning archaeological and historical resources. Some of the more significant regulations and programs include the Antiquities Act of 1906, the Historic Sites Act of 1935, the National Historic Preservation Act of 1966, the National Register of Historic Places, Archaeological Resources Protection Act of 1979, and the Native American Graves Protection and Repatriation Act of 1990. A more extensive listing of relevant legislation, programs, and guidelines with corresponding brief descriptions is included in the General Plan Appendices (Appendix A). However, this listing is not intended to be exhaustive; more recent court cases may provide clearer definitions for some of the laws and guidelines listed.



Goals, Objectives, and Policies

The major issue for this Element is the preservation of historic, archaeological, and paleontologic resources within the City of Seal Beach. This section provides associated goals, objectives, and policies as presented below. Existing policies have been brought forward from previous General Plan amendments, and policies have been updated or augmented as needed.

Seal Beach is located in an area that has attracted humans during prehistoric and historic times. This rich past has been incorporated into the fabric of the City and provides a link to the community's heritage and history. These resources have a value that needs to be protected and enhanced to maintain the historical quality and focus of the community.

Goal 1: Preserve and protect historical, archaeological, and paleontological resources

- Policy 1: Balance the benefits of development with the project's potential impacts to existing cultural resources.
- Policy 2: Identify, designate, and protect sites and buildings of historic importance.
- Policy 3: Coordinate cultural resource programs and development project review with affected resource agencies and Native American representatives.
- Policy 4: Identify funding programs to assist private and public property owners in the preservation of buildings and sites of historic importance.
- Policy 5: Assess development proposals for potential impacts to significant archaeological resources pursuant §15064.5 of the California Environmental Quality Act (CEQA). Require a study conducted by a professional archaeologist for all development proposals located in areas known to be sensitive for cultural resources.



Implementation

Protect Significant Archaeological Resources

Assess development proposals for potential impacts to significant archaeological resources pursuant to §15064.5 of the California Environmental Quality Act. Require a study conducted by a professional archaeologist for all development proposals located in areas known to be sensitive for cultural resources. Guidance for such studies is provided within General Plan Appendix A. The objective of the study is to determine if significant archaeological resources are potentially present and if the project will significantly impact the resources. If significant impacts are identified, either require the project to be modified to avoid the impacts, or require measures to mitigate the impacts. Mitigation may involve archaeological investigation and resource recovery.

Development Services is the primary City department responsible for ongoing implementation, and funding is anticipated to be provided by development fees.

Preserve Significant Historic Resources

Assess development proposals for potential impacts to significant historic resources pursuant to §15064.5 of the California Environmental Quality Act. For structures that potentially have historic significance, require a study conducted by a professional architectural historian or historian to determine the actual significance of the structure and potential impacts of the proposed development. Require modifications of projects to avoid significant impacts, or require mitigation measures. Protect historical buildings and sites to the extent possible.

Development Services is the primary City department responsible for ongoing implementation, and funding is anticipated to be provided by development fees.



Protect Significant Paleontological Resources

Assess development proposals for potential impacts to significant paleontologic resources pursuant to §15064.5 of the California Environmental Quality Act. If the project involves earthwork, require a study conducted by a professional paleontologist to determine if paleontologic assets are present and if the project will significantly impact the resources. If significant impacts are identified, either require the project to be modified to avoid impacting the paleontologic materials, or require measures to mitigate the impacts.

Development Services is the primary City department responsible for ongoing implementation, and funding is anticipated to be provided by development fees.

Historical, Archaeological and Paleontological Resource Management Guidelines

Prepare and maintain guidelines for historic, archaeological, and paleontological resource management to guide review of development proposals. Archaeological resource management guidelines are provided within Appendix A. These guidelines should be expanded to also address historical and paleontological resource management and also updated periodically to address new technological and legal approaches to cultural resource analysis and management.

Development Services is the primary City department responsible for ongoing implementation, and funding is anticipated to be provided by the General Fund and state and federal grants.

Establishment of Programs for Preservation of Historic/Archaeologic/Paleontologic Resources

Identify and implement programs to assist and encourage private property owners to preserve historic, archaeological, and paleontologic resources within the City.

Development Services is the primary City department responsible for ongoing implementation, and funding is anticipated to be provided by development fees, and state and federal tax credits and grants.



Inventory of Historic and Cultural Landmarks

Establish and update as needed a City Inventory of Historic and Cultural Landmarks using criteria and recording standards consistent with state regulations for use in evaluating development proposals under CEQA.

The Development Services Department and the Archaeological Advisory Committee are primarily responsible for ongoing implementation, and funding is anticipated to be provided by the General Fund, state and federal funding programs.



Appendix A – Cultural Resources

This Appendix includes the following procedures and information to help implement the goals and policies contained within the Cultural Resources Element. These procedures and information are intended to be updated periodically to reflect advances in professional, legal, and technological approaches to cultural resource analysis and management.

Appendix A Sections

- Appendix A-1 Management Procedures
- Appendix A-2 Research Design
- Appendix A-3 Native American Consultants
- Appendix A-4 Archaeological Consultants
- Appendix A-5 Definitions
- Appendix A-6 Cultural Resources Records Search Quick Check Form
- Appendix A-7 Research Methods
- Appendix A-8 Federal and State Laws and Policies, and Tribal Guidelines Concerning Archaeological and Historical Resources
- Appendix A-9 Society of Professional Archaeologists Documents



Appendix A-1 Management Procedures

These are the procedures that shall be followed for the management of all cultural resources within the boundaries of the City of Seal Beach.

- 1.A All currently undeveloped properties within the boundaries of the City of Seal Beach shall be required to be researched and surveyed for archaeological sites, remains, artifacts, ecofacts, archaeological places, and historical structures and places, by an Archaeological Consultant, as defined in “Archaeological Consultants,” prior to the approval by the City of any development entitlements. This work shall be at the expense of the party requesting the development entitlements (e.g., any necessary development entitlement or permit).
- 1.B Archaeological consultants shall be appointed by the Seal Beach City Council.¹
- 1.C The Seal Beach City Council shall require thorough scientific evaluation of properties and sites by qualified consultants as defined in ***Archaeological Consultants*** prior to the issuance of development entitlements. This evaluation requires the following phases:
 - 1.C.1 Literature Search from Baseline Survey². A literature search is a review of all relevant information that pertains to cultural resources on a subject site and is a prerequisite to obtaining development entitlements. The literature search may indicate the necessity of further research to determine the feasibility of development on the site. A literature search must include a review of the City’s Baseline Survey (Stickel, 1990) and all subsequent information. The Archaeological Consultant shall also complete a literature review at the local Archaeological Information Center (now located at CSUF) for information post-dating Dr. Stickel’s research.
 - 1.C.1.1 Baseline Survey and Determination of Current Status of Cultural Resources. The Baseline Survey is a collection of information covering all previously recorded archaeological surveys

¹ See Appendix A-4, Archaeological Consultants.

² The Baseline Survey for Seal Beach was conducted in December 1990 by Dr. E. Gary Stickel of ERA Archaeology, Inc.



and sites. The Baseline Survey includes copies of the maps from the regional State Archive at the California State University at Fullerton (CSUF) which show all of the known site locations in the City of Seal Beach.³ All information compiled in the Baseline Survey is filed with the Seal Beach Planning Department.

Baseline Survey data includes a map showing the locations of all previously reported archaeological sites, both destroyed and extant, within the boundaries of the City of Seal Beach.

The following parties shall have access to the Baseline Survey information:

- 1) Appointed archaeological consultant(s);
- 2) Seal Beach City Council;
- 3) Seal Beach Planning Commission;
- 4) Seal Beach Planning Department;
- 5) Archaeological Advisory Committee;
- 6) Landowner.

1.C.1.2. Cultural Resources Records Search Quick Check. All proposed projects which are subject to the provisions of this section shall be required to have a “*Cultural Resources Records Search Quick Check*” completed by the Archaeological Information Center at CSUF and submitted to the City as part of the initial application packet for the application to be considered by the City.⁴

1.C.2 Site Survey. A site survey is a walkover inspection by an archaeologist⁵ of a site for cultural resources, which covers 100% of the subject site. If the literature search or Cultural Resources Records Search Quick Check re-

³ The Baseline Survey data may not include all extant sites within the City of Seal Beach. The City has never been systematically surveyed in its entirety.

⁴ See Appendix A-B for the required submission form for a “Cultural Resources Records Search Quick Check.”

⁵ See Appendix A-4, Archaeological Consultants.



veals that a known site(s) exist on the subject site, a site survey must be conducted. In addition, on sites shown through the literature search not to have been previously surveyed, a site survey must be conducted to establish whether archaeological/historical sites exist.

1.C.3 Test Phase. A test phase⁶ is an excavation of test pits to determine the scope of archaeological resources on a site. If a cultural site is discovered in the site survey, a test phase on an archaeological site, and the recording of an historical site, must be completed.

1.C.4 Final Mitigation. Final mitigation is the final disposition of cultural resources on a site. If a researched site is not to be preserved in situ (in place), a final mitigation method must be selected. These methods may include the following:

1.C.4.1 Capping or fencing of the site.

1.C.4.2 Relocation of the cultural resource for preservation.

1.C.4.3 Total excavation of the site.⁷

1.C.4.4 Partial excavation of the site.⁸

1.C.4.5 Renovation or reconstruction of historic or archaeological structures.

1.D. Archaeological Advisory Committee. The Seal Beach City Council shall create a standing Archaeological Advisory Committee. Membership shall be by the appointment of the Seal Beach City Council and members shall serve without pay for a term not to exceed one year unless reappointed. Members of the Archaeological Advisory Committee shall be deemed to have a “need to know” site specific information.

⁶ See full Definition in Appendix A-5, Definitions.

⁷ Per Federal Guidelines, in the case of a cemetery.

⁸ By scientific probability sampling.



Appendix A-2 Research Design

A Research Design document⁹ is a document written by a City Council appointed Archaeologist that presents a scientific, precise, and well-defined strategy for the investigation of archaeological resources on a subject site. The Research Design document shall contain a clear discussion of the methodology, methods, and research questions that will be used in the investigation. It shall provide an explicit, scientific, precise, and well-defined plan for the possible excavation of archaeological sites and for the analysis of all recovered data, with the exception of Native American remains, which shall not be analyzed or excavated unless prior permission has been given by the Most Likely Descendants.

Whenever archaeological materials are to be excavated, The Seal Beach City Council shall require that a formal Research Design Document be written and presented to the Council. The proposed Research Design document shall be forwarded to the Representative of the affected Native American tribes, as defined herein¹⁰, the Archaeological Information Center at CSUF, and shall be posted in a prominent location in the Seal Beach City Hall, and at all libraries located within the City. These actions shall take place at least 30 days prior to formal approval of the Research Design document by the Seal Beach City Council. Staff recommendations, if any, shall have been received by the Seal Beach City Council at least two weeks prior to agendizing the vote to approve the Research Design document by the Seal Beach City Council, and shall include all comments on the proposed Research Design document received from the representatives of the affected Native American tribes, the Archaeological Information Center, and individuals and organizations.

- 2.A Research Design Document Requirement. The Research Design document shall include a number of well-defined research problems. The relevance of those research problems to local chronological or cultural development or other questions useful to testing propositions of method and theory must be justified.

The problems must be formulated into testable hypotheses. The data required to test the hypotheses must be relevant and justified. The methods and techniques used to quantify and test the

⁹ See Appendix A-5, Definitions.

¹⁰ See Appendix A-3, Native American Representatives, Section 3.C.



hypotheses must be specified. Unless an archaeological site is completely excavated, probability sampling must be used. The specific probability sampling technique must also be justified.

Other data acquisition methods must also be discussed if they are to be used in the research program.¹¹

The Research Design document shall propose research questions or hypotheses directed toward the provision of new information about the history of Seal Beach.

In addition, the Research Design document must conform to the standards for Research Design documents set forth in *Archaeological Research Management Reports (ARMR): Recommended Contents and Format*, (12-89 or most recent edition), a publication of SOHP; *Statenide Interpretative Guidelines*, page 92, Research Design, (12-16-81 or most recent edition), a publication of the California Coastal Commission; and *Draft Guidelines for Archaeological Research Designs*, (8-21-90 or most recent edition), a publication of SOHP.

¹¹ See Appendix A-7, Research Methods.



Appendix A-3 Native American Consultants

This section contains identification requirements to ensure legitimate Native American representation and involvement in the development of a sound strategy for archaeological and historical resource management. These requirements provide methods to identify the legitimate Native American Representatives who shall contribute to the proper management of Native American Cultural and Religious Resources. The proposed Native American Representative(s) must provide the following documentation:

Identification Requirements

- 3.A Federal. Bureau of Indian Affairs Documentation of the proposed Representative(s)' Native American ancestry.
- 3.B State. Written confirmation of the proposed Representative(s)' tribal ancestry from the Native American Heritage Commission.
- 3.C Regional. Letter of concurrence from the elected Tongva (Gabrielino) Tribe Representative stating that the proposed Representative is qualified and has been designated or elected to represent all tribal members.
 - 3.C.1. Each proposed Native American Representative must be duly elected by the members of a Pan-Tribal Council, such as, and including, the Native American Coalition.
- 3.D Native American Monitors and/or Fieldwork Consultant Requirements. Monitors must complete a 20-hour course in archaeological monitoring methods from an accredited archaeologist as defined below in "Archaeological Consultants" prior to their official appointment.



Appendix A-4 Archaeological Consultants

All archaeological consultants, seeking to conduct archaeological investigations within the jurisdiction of the City of Seal Beach, shall be appointed by the Seal Beach City Council, according to the following standards. Each potential archaeological consultant must agree to comply with:

- 1) Register of Professional Archaeologists (RPA) Code of Conduct (formerly known as the Society of Professional Archaeologists (SOPA) Code of Ethics), most recent edition. See Appendix A-9.
- 2) *RPA Standards of Research Performance*, most recent edition. See Appendix A-9.

These standards shall apply to all Archaeological Consultants working in the City of Seal Beach, regardless of whether the proposed archaeologist currently holds RPA membership.

- 4.A Professional Qualifications for Archaeological Consultants. Expertise in prehistoric archaeology, historic archaeology, or historic preservation shall be required during cultural resource studies. The more detailed qualifications for Archaeological specialists are as follows:

4.A.1 Prehistoric/Ethnohistoric Archaeology

4.A.1.1 Principal investigator, Project Director or Specialist in Prehistoric Archaeology shall possess a Ph.D or at least an M.A. in Anthropology or Archaeology from an accredited College or University. In addition, he/she shall meet the requirements for certification in field research by RPA and shall demonstrate familiarity with the prehistoric and ethnohistoric archaeology of Southern California.

4.A.1.2 Field Supervisor or Crew Chief shall possess at least a B.A. in anthropology or archaeology and at least two months' accumulated field experience in archaeological reconnaissance or excavation on projects where prehistoric or ethnohistoric archaeological resources were under investigation.



4.A.2 Historic Archaeology/Research

4.A.2.1 Principal Investigator, Project Director or Specialist in Historic Archaeology shall possess a Ph.D or at least a M.A. in Anthropology or Archaeology from an accredited College or University. In addition, he/she shall meet the requirements for certification in field research by RPA and shall demonstrate familiarity with the historic archaeology and research of Southern California.

4.A.2.2 Field Supervisor, Crew Chief, or Research Assistant shall possess at least a B.A. in Anthropology or Archaeology or History, and at least two months' accumulated field experience in archaeological reconnaissance or excavation on projects where historic archaeological resources were under investigation, or two months accumulated experience in archival research on projects where historic resources were under investigation.

4.A.3 Historic Preservation. A specialist in historic preservation must possess a Ph.D. or at least a M.A. in historic preservation and demonstrate experience in the application of preservation techniques to historic structures.

4.B Appointment Procedures for Archaeological Consultants

4.B.1 Archaeological consultants shall be appointed by the Seal Beach City Council.

4.B.2 The Seal Beach City Council may rescind the appointment of an archaeological consultant prior to the completion of the contract.

4.B.3 The Seal Beach City Council shall require that the following documents be written and presented by its appointed archaeological consultants:

- a. A Research Design document as described above in Research Design.



- b. Only in the event that excavation is deemed necessary¹², an Excavation Plan shall be prepared in accordance with the specifications set forth in Archaeological Research Management Reports (ARMR): Recommended Contents and Format, (12-89 or most recent edition), a publication of SOHP; and CEQA Guideline §15064.5.
 - c. A Final Report, written to the specifications set forth in Archaeological Research Management Reports (ARMR): Recommended Contents and Format, (12-89 or most recent edition), a publication of SOHP; and CEQA Guidelines §15064.5.
- 4.B.4 The Seal Beach City Council may reject an archaeological consultant's final report if it is deemed inadequate, inaccurate, or incomplete.
- 4.B.5 In the event the consultant presents a final report that is rejected, an acceptable report must be submitted before final formal approval of the requested development entitlements shall be granted by the Seal Beach City Council.

¹² By the City Council acting on the advice of its appointed archaeological consultant and any other information.



Appendix A-5 Definitions

For the purposes of the Cultural Resources Element, the following terms are defined below:

ACOE shall mean the United States Army Corps of Engineers.

Archaeological Place shall mean a location of ancient human habitation containing natural objects used by humans.

Archaeologist shall mean a scientist with a Doctorate or Masters Degree in Archaeology or Anthropology from an accredited university or college.

Artifact shall mean an object made by humans.

Baseline Survey shall mean a review of all known literature pertaining to cultural sites for a given area and an inventory of all known site locations and their documentation up to date of study (for Seal Beach, Stickel, 1990).

Cabrillo, Juan (?-1543) shall mean the Spanish explorer whose arrival in 1542 signaled the beginning of the historical period in Southern California.

CCC shall mean the California Coastal Commission, a State agency.

CEQA shall mean the California Environmental Quality Act, State legislation.

CSUF shall mean the California State University at Fullerton campus

Chumash shall mean the Native American tribe whose territory range is from Malibu through Santa Barbara to the San Luis Obispo area and the Channel Islands.

Cultural Resources shall mean human-made or utilized sites, artifacts and ecofacts, as well as human remains.

Cultural Resource Management shall mean local, state or federal governmental control of cultural resources.

CRM shall mean Cultural Resource Management.



Dedicated Cemetery shall mean an area containing burials considered to be a dedicated cemetery by Native Americans.

Development Entitlement shall mean any approval granted by the City to allow for a change of current land use on an undeveloped site (e.g., General Plan Amendment, Specific Plan, Specific Plan Amendment, Zone Change, Conditional Use Permit, Variance, Subdivision Map Approval [Vesting, Tentative, Parcel], Minor Plan Review, Minor Height Variation, Grading Permit, Building Permit, etc.).

Ecofacts shall mean natural objects or substances utilized by humans – e.g., unaltered crystals, deer bones, or midden shells found on (a) site(s).

EIR shall mean an Environmental Impact Report.

EQCB shall mean the Environmental Quality Control Board, a City of Seal Beach commission.

Ethnohistoric Archaeology shall mean for Southern California, the study of Native American sites that post-date Cabrillo's arrival in 1542.

Excavation shall mean formal digging of archaeological research units on a subject site, done according to a formal Research Design document.

Gabrielino (or Gabrieleno), also known as Tongva shall mean the Native American tribe whose territory includes Topanga Canyon, the San Fernando Valley, and the greater Los Angeles basin, south to Aliso Creek.

Grading shall mean earth removal stage of the construction process.

Historian shall mean a professional with a Ph.D. or at least a Masters degree in History or Historic Preservation from an accredited University or College.

Historical Archaeology shall mean for Southern California, the study of Euro-American sites that post-date Cabrillo's arrival in 1542.

Juaneño shall mean the Native American tribe whose territory includes the Mission San Juan Capistrano area.



Literature Search shall mean a review of all relevant information pertaining to cultural resources on a subject site.

Midden shall mean a cultural deposit indicating prior human utilization of a resource.

Monitor, Native American shall mean a consultant hired to observe work on a cultural site or resource.

NAC shall mean the Native American Coalition, an organization of Native American Tribes.

NAHC shall mean the Native American Heritage Commission, a California board.

NEPA shall mean the National Environmental Policy Act, federal legislation.

Prehistoric Archaeology shall mean for Southern California, the study of cultural resources that predate Cabrillo's arrival in 1542.

Representative, Native American shall mean the Chairperson or other leader legitimately elected by a Pan-Tribal organization of Native American Tribes.

Research Design document shall mean a formal written document that describes the scientific plan of research for an archaeological project.

RPA shall mean the Register of Professional Archaeologists, an organization of professional archaeologists. Members must adhere to the *Code of Conduct* and *Standards of Performance*.

Site shall mean a place that yields archaeological/historical evidence of past human activity.

Site Survey shall mean an archaeological/historical inspection of a site. The survey is conducted on foot or by remote sensing techniques.

SOHP shall mean the State Office of Historic Preservation, a California governmental department.

SOPA shall mean the Society of Professional Archaeologists, an organization of professional archaeologists which is now



known as the Register of Professional Archaeologists (RPA).

South Central Coastal Archaeological Information Center (SCCIC) shall mean the designated Archaeological Information Center for the South Central Coastal region of California, an agency of SOHP, currently located at CSUF.

Test Phase shall mean that stage of research during which the entire site is tested to determine archaeological site boundaries, depth of deposits, aboriginal historical materials represented, time sequence represented, and “significance,” which is defined in *CEQA Guidelines* §15064.5.

Tongva (also known as Gabrielino or Gabrieleno) shall mean the Native American tribe whose territory includes Topanga Canyon, the San Fernando Valley, the southern Channel Islands, and the greater Los Angeles basin, south to Aliso Creek. Tongva means “people of the earth” in the Tongva native language.



Appendix A-6

“Cultural Resources Records Search Quick Check” Form

California Archaeological Inventory		Regional Information Center
Cultural Resources Records Search Quick Check		
Lead Agency: _____		
Permit/Project #: _____ Date: _____		
Case Planner: _____ Attached USGS Quad: _____		
Brief Project Description: _____		
* UCLA ARCHAEOLOGICAL INFORMATION CENTER INITIAL RECORDS SEARCH		
/ / The project area has been surveyed by a professional archaeologist and no cultural resources were found.		
/ / The project area has been surveyed by a professional archaeologist and cultural resources were found.		
/ / The project area has not been surveyed by a professional archaeologist but cultural resources are likely to be in the area.		
/ / The project area has not been surveyed by a professional archaeologist and cultural resources are not likely to be in the area.		
<u>RECOMMENDATIONS</u>		
/ / A Phase I ** archaeological survey should be done by a professional archaeologist prior to approval of project plans.		
/ / A Phase II ** testing program for determination of significance.		
/ / A professional archaeologist should be retained to monitor any earth moving operations.		
/ / No archaeological work is needed prior to approval of the project plans but a halt-work condition should be in place in the event of cultural resources being discovered during construction.		
<u>COMMENTS</u>		

* This Quick Check does not cover cultural heritage sites, either listed pending, such as historic buildings or points of interest.		
** Phase I survey and Phase II testing includes a complete records search field evaluation, and a final report with results and recommendations.		
Date Completed: _____ Signature: _____		
		Staff Archaeologist
Letter attached / /		



Appendix A-7 Research Methods

1. ***Absolute Dating*** shall mean the dating of an archaeological site or artifact by using a known calendar system (e.g., a coin with a date) or a chronometric method which yields an age-date in calendar years.
2. ***Auguring*** shall mean the use of a small hand tool for drilling sample holes for archaeological sites.
3. ***Chronometric Dating*** shall mean the dating of sites or artifacts using scientific methods that directly quantify the age-date in calendar years (e.g., radiocarbon dating, tree-ring dating).
4. ***Magnetometry*** shall mean a technique used to search for buried archaeological features (e.g., fire pits, house structures), using an instrument that records small variations in the intensity of the earth's magnetic field.
5. ***Mineralization Analysis*** shall mean a relative dating technique based on the physical-chemical change of artifacts over time.
6. ***Pollen Sampling*** shall mean the collection of preserved, minute pollen grains from sites or artifacts. Because each plant species has its own unique form of pollen, archaeological grains can be identified as belonging to each species represented.
7. ***Probability Sampling*** shall mean scientifically established methods used to obtain accurate samples of data from which the nature of an entire population can be described by probability. For archaeology, the excavation of pits or units selected randomly, so as to represent the entire site.
8. ***Radar*** shall mean a technique in which an instrument called a Ground Penetrating Radar (G.P.R.) is used to search for buried archaeological features.
9. ***Relative Dating*** shall mean the dating of an archaeological site or artifact by placing its age relative to other sites or artifacts.
10. ***Remote Sensing Techniques*** shall mean techniques that use various instruments to detect archaeological sites or data from a distance. Commonly used instruments include Air-borne Cameras, Sonar, and Magnetometer units.
11. ***Soil Chemistry Analysis*** shall mean the analysis of soil samples from archaeological sites which records the chemical facts used



to define features, including site boundaries and areas of ancient human activity.

12. ***Trenching*** shall mean the excavation of long rectangular holes across a site to explore the data, used today, to help define stratigraphy.



Appendix A-8

Federal and State Laws and Policies, and Tribal Guidelines Concerning Archaeological and Historical Resources

Following is a summary of various Federal and State mandates and legislation and preferred Native American policy concerning archaeological and historical resources. This is not intended to be an exhaustive listing; more recent court cases may provide clearer definition for some of the laws and guidelines listed.

1. “Guidelines for Monitors/Consultants of Native American Cultural, Religious, and Burial Sites,” Native American Heritage Commission, July 10, 1989.
2. “A Professional Guide for the Preservation and Protection of Native Remains and Associated Grave Goods -- Resource Guide for: Coroners, Native American Most Likely Descendants, City and County Planners, Property Owners, Developers,” Native American Heritage Commission. June 1988.
3. “Determining Significance of Impacts on Historical and Unique Archaeological Resources,” §15064.5 (formerly known as Appendix K), California Environmental Quality Act Statutes and Guidelines, Governor’s Office of Planning and Research, 2003.
4. “Antiquities Act of 1906,” (P.L. 59-209; Stat. 225; 16 U.S.C. 431-433). This law provides for the protection of historic or prehistoric remains or any object of antiquity on federal lands; established criminal sanctions for unauthorized destruction or appropriation of antiquities; and authorizes scientific investigation of antiquities on federal lands, subject to permit and regulations. Paleontological resources are also considered to fall within the authority of this act.
5. “Historic Sites Act of 1935,” (P.L. 74-292; Stat. 666; 16 U.S.C. 461-467). This law authorizes the establishment of national historic sites and otherwise authorized the preservation of historic sites and/or archaeological properties of national significance; provides the basis for the designation of national historic landmarks; establishes criminal sanctions for violation of regulations pursuant to the Act; authorized interagency, intergovernmental and interdisciplinary efforts for the preservation of cultural resources.



6. “Reservoir Salvage Act of 1960,” (P.L. 86-521; 74 Stat. 220; 16 U.S.C. 469-469c). This law provides for the recovery and preservation of historical and archaeological data, including relics and specimens that might be lost or destroyed as a result of the construction of dams, reservoirs, and attendant facilities.
7. “National Historic Preservation Act of 1966,” (P.L. 89-665; 80 Stat. 915; 16 U.S.C. 470). This law declares historic preservation as a national policy and defines it as the protection, rehabilitation, restoration, and reconstruction of districts, sites, buildings, structures and objects significant in American history, architecture, archaeology, or culture, including the encouragement of preservation on the state, local and private levels; directs the expansion of the National Register of Historic Places to include cultural resources of state and local significance, as well as those of national significance; authorized matching federal grants to states and the National Trust for Historic Preservation for the acquisition and rehabilitation of National Register properties; establishes the Advisory Council on Historic Preservation (ACHP); provides direction in Section 106 for federal agencies to follow in the event an undertaking affects a property listed on or eligible for the National Register. As amended (P.L. 94-458, 90 Stat. 1972), the Act authorizes the Secretary of the Interior to withhold from disclosure to the public locational information on National Register listings “whenever he/she determines that the disclosure of specific Information would create a risk of or harm to such sites or objects.” Section 106 of the National Historic Preservation Act is implemented by regulations Issued by the ACHE (36 C.F.R. 800; and as amended in 1980, Section 110 details Federal agency responsibilities for the identification and preservation of Historic properties).
8. “National Environmental Policy Act (NEPA) of 1969,” (P.L. 91-290; 83 Stat. 852; 42 U.S.C. 4321). This law states, among other things, that it is the policy of the federal government to preserve important historic, cultural, and natural aspects of our national heritage. Compliance with NEPA requires consideration of environmental concerns during project planning and execution. Procedural requirements of NEPA are implemented by regulations Issued by the Council on Environment Quality (40 C.F.R 1500-1508).
9. “Executive Order 11593, Protection and Enhancement of the Cultural Environment,” 13 May 1971 (36 C.F.R. 8921). Executive Order 11593 asserts that the federal government shall pro-



vide leadership in preserving, restoring and maintaining the historic and cultural environment of the nation; directs federal agencies to insure the preservation and enhancement of non-federally owned sites; directs federal agencies to locate, inventory and nominate to the National Register all properties under their control or jurisdiction that meet the criteria for nomination; directs federal agencies to exercise caution during the interim period to insure that cultural resources are not inadvertently damaged, destroyed, or transferred before the completion of inventories and evaluations of properties worthy of nomination to the National Register; and directs the Secretary of the Interior to undertake certain advisory responsibilities in compliance with the order.

10. “Archaeological and Historical Preservation Act of 1974,” (P.L. 93-291; 88 Stat. 174). This law amends the Reservoir Salvage Act of 1960 to extend provisions and provide a mechanism for funding for the protection of historical and archaeological data at dams and reservoirs to involve and include any alteration of the terrain caused by any federal construction project or federally licensed activity or program.
11. “National Register of Historic Places,” 10 February 1976, as amended (36 C.F.R. 60). Regulations promulgated by the Department of the Interior that establishes the National Register of Historic Places and outlines the process for nominating properties to it.
12. “Criteria for Comprehensive Statewide Historic Surveys and Plans,” 21 September 1977, as amended (36 C.F.R. 62). Regulations promulgated by the Department of the Interior which describes the designation and responsibilities of the State Historic Preservation Officer, the professional staffing of the state office, professional qualifications, the comprehensive statewide survey process, the state historic preservation plan, and protection of historic properties.
13. “Archaeological Resources Protection Act of 1979,” 6 January 1984 (32 C.F.R. 299). Regulations promulgated by the Departments of the Interior, Agriculture and Defense, and the Tennessee Valley Authority which establish uniform procedures for implementing provisions of the Archaeological Resources Protection Act of 1979. These regulations enable federal land managers to protect archaeological resources on public and Indian lands.



14. “National Historic Landmarks Program,” 2 February 1983 (36 C.F.R. 65). Regulations promulgated by the Department of the Interior which set forth the Secretary of the Interior’s criteria for national significance and the process used to identify, designate, recognize, and monitor the integrity of National Historic Landmarks.
15. “Determinations of Eligibility for Inclusion in the National Register of Historic Places,” 21 September 1977 (36 C.F.R. 63). This rule codifies the process through which federal agencies request and obtain a determination of a property’s eligibility for inclusion in the National Register of Historic Places, to implement Executive Order 11593 and the National Historic Preservation Act of 1966, as amended.
16. “Protection of Historic Properties,” 1 October 1986, (36 C.F.R. 800). Regulations promulgated by the Advisory Council on Historic Preservation which describe the procedure a federal agency must follow in affording the Council an opportunity to comment on its undertakings that affect National Register or eligible properties pursuant to Section 106 and Section 110 of the National Historic Preservation Act.
17. “Public Buildings Cooperative Use Act of 1976,” (90 Stat. 2505). This Act encourages the use of historic buildings as administrative facilities for federal agencies or activities.
18. “The President’s Memorandum on Environmental Quality and Water Resources Management,” 12 July 1978. Directs federal agencies with water resources and related land resources management responsibilities and programs to publish procedures implementing the ACHS’s regulations (36 C.F.R. 800).
19. “American Indian Religious Freedom Act,” 1 August 1978 (P.L. 95-341). This act establishes as policy of the United States protection and preservation for American Indians of their inherent right to freedom to believe, express, and exercise their traditional religions, and directs federal agencies to consult with native traditional religious leaders to determine appropriate policy changes necessary to protect and preserve American Indian religious cultural rights and practices.
20. “Archaeological Resources Protection Act,” 31 October 1979 (P.L. 96-95). This act clarifies and defines “archaeological resources;” prohibits the removal, sale, receipt, and interstate transport of archaeological resources obtained illegally from



- public or Indian lands; provides substantial criminal and civil penalties for those who violate the terms of the act; authorizes confidentiality of site location information; and authorizes permit procedures to enable the study and investigation of archaeological resources on public and Indian land by qualified individuals. The act supplements the Antiquities Act of 1906.
21. “Findings and Policy of National Historic Preservation Act,” 12 December 1980, (P.L. 96-515, 94 Stat. 2987). Amendments to the Historic Preservation Act of 1966; continues the National Register of Historic Places with properties of national, state, and local significance; directs the Secretary of the Interior to establish guidelines for nationally significant properties, curation of artifacts, documentation of historic properties, and preservation of federally owned historic properties, prior to alteration; designates a Preservation Officer within each federal agency; authorizes the inclusion of historic preservation, inventory, and evaluation costs in project planning costs; authorizes the inclusion of historic inventory, evaluation and data recovery in federal licenses and permits; and authorizes withholding sensitive data on historic properties when necessary.
 22. “Archaeology and Historic Preservation: Secretary of the Interior’s Standards and Guidelines,” 29 September 1983. Sets forth the Secretary of the Interior’s standards and guidelines for archaeology and historic preservation and provides federal agency personnel and others with technical advice about archaeological and historic preservation activities and methods.
 23. “Treatment of Archaeological Properties: A Handbook,” 5 November 1980. ACEH’s guide to principles, procedures and methods for the treatment of archaeological properties to assist federal agencies and State Historic Preservation Officers in meeting their responsibilities pursuant to 36 C.F.R. 800.
 24. “The Secretary of the Interior’s Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings,” revised 1983. Provides guidance to assist federal agencies and others in meeting their historic preservation responsibilities for rehabilitation of historic buildings under federal ownership and control. The guidelines provide more specific guidance and technical information.
 25. “Senate Bill 297” (Garamendi), Chapter 1492, Statutes of 1982.
 26. “California Coastal Act of 1976,” Section 30001.5 and 30244.



Appendix A – Cultural Resources Element

27. “Native American Graves Protection and Repatriation Act of 1990”
28. “Guidelines for Archaeological Research Designs,” State Office of Historic Preservation, 1991.



Appendix A-9

Society of Professional Archaeologists Documents

1. “Code of Conduct,” 2003.
2. “Standards of Research Performance,” 2003.



Code of Conduct

Archaeology is a profession, and the privilege of professional practice requires professional morality and professional responsibility, as well as professional competence, on the part of each practitioner.

I. The Archaeologist's Responsibility to the Public

1.1 An archaeologist shall:

- (a) Recognize a commitment to represent archaeology and its research results to the public in a responsible manner;
- (b) Actively support conservation of the archaeological research base;
- (c) Be sensitive to, and respect the legitimate concerns of, groups whose culture histories are the subjects of archaeological investigations;
- (d) Avoid and discourage exaggerated, misleading, or unwarranted statements about archaeological matters that might induce others to engage in unethical or illegal activity;
- (e) Support and comply with the terms of the UNESCO Convention on the means of prohibiting and preventing the illicit import, export, and transfer of ownership of cultural property, as adopted by the General Conference, 14 November 1970, Paris.

1.2 An archaeologist shall not:

- (a) Engage in any illegal or unethical conduct involving archaeological matters or knowingly permit the use of his/her name in support of any illegal or unethical activity involving archaeological matters;
- (b) Give a professional opinion, make a public report, or give legal testimony involving archaeological matters without being as thoroughly informed as might reasonably be expected;



- (c) Engage in conduct involving dishonesty, fraud, deceit, or misrepresentation about archaeological matters;
- (d) Under take any research that affects the archaeological resource base for which she/he is not qualified.
- II. The Archaeologist's Responsibility to Colleagues
- 2.1 An archaeologist shall:
 - (a) Give appropriate credit for work done by others;
 - (b) Stay informed and knowledgeable about developments in his/her field or fields of specialization;
 - (c) Accurately, and without undue delay, prepare and properly disseminate a description of research done and its results;
 - (d) Communicate and cooperate with colleagues having common professional interests;
 - (e) Give due respect to colleagues' interests in, and rights to, information about sites, areas, collections, or data where there is a mutual active or potentially active research concern;
 - (f) Know and comply with all federal, state and local laws, ordinances and regulations applicable to her/his archaeological research.
 - (g) Report violations of this Code to proper authorities.
 - (h) Honor and comply with the spirit and letter of the Register of Professional Archaeologist's Disciplinary Procedures.
- 2.2 An archaeologist shall not:
 - (a) Falsely or maliciously attempt to injure the reputation of another archaeologist;
 - (b) Commit plagiarism in oral or written communication;
 - (c) Undertake research that affects the archaeological resource base unless reasonably prompt and appropriate analysis and reporting can be expected;



- (d) Refuse a reasonable request from a qualified colleague for research data;
- (e) Submit a false or misleading application for registration by the Register of Professional Archaeologists.

III. The Archaeologist's Responsibility to Employers and Clients

3.1 An archaeologist shall:

- (a) Respect the interests of his/her employer or client, so far as is consistent with the public welfare and this Code and Standards;
- (b) Refuse to comply with any request or demand of an employer or client that conflicts with the Code or Standards;
- (c) Recommend to employers or clients the employment of other archaeologists or other expert consultants upon encountering archaeological problems beyond her/his own competence;
- (d) Exercise reasonable care to prevent his/her employees, colleagues, associates, and others whose services are utilized by her/him from revealing or using confidential information. Confidential information means information of a non-archaeological nature gained in the course of employment which the employer or client has requested be held inviolate, or the disclosure of which would be embarrassing or would be likely to be detrimental to the employer or client. Information ceases to be confidential when the employer or client so indicates or when such information becomes publicly known.

3.2 An archaeologist shall not:

- (a) Reveal confidential information, unless required to by law;
- (b) Use confidential information to the disadvantage of the client or employer;
- (c) Use confidential information for the advantage of herself/himself or a third person, unless the employer or client consents after full disclosure;



- (d) Accept compensation or anything of value for recommending the employment of another archaeologist or other person, unless such compensation or thing of value is fully disclosed to the potential employer or client;
- (e) Recommend or participate in any research which does not comply with the requirements of the Standards of Research Performance.

Standards of Research Performance

The research archaeologist has a responsibility to attempt to design and conduct projects that will add to our understanding of past cultures and/or that will develop better theories, methods, or techniques for interpreting the archaeological record, while causing minimal attrition of the archaeological resource base. In the conduct of a research project, the following minimum standards should be followed:

- I. The archaeologist has a responsibility to prepare adequately for any research project, whether or not in the field. The archaeologist must:
 - 1.1 Assess the adequacy of her/his qualifications for the demands of the project, and minimize inadequacies by acquiring additional expertise, by bringing in associates with the needed qualifications, or by modifying the scope of the project;
 - 1.2 Inform himself/herself of relevant previous research;
 - 1.3 Develop a scientific plan of research which specifies the objectives of the project, takes into account previous relevant research, employs a suitable methodology, and provides for economical use of the resource base (whether such base consists of an excavation site or of specimens) consistent with the objectives of the project;
 - 1.4 Ensure the availability of adequate staff and support facilities to carry the project to completion, and of adequate curatorial facilities for specimens and records;



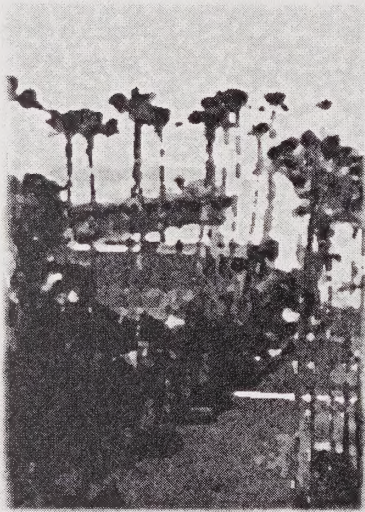
- 1.5 Comply with all legal requirements including, without limitation, obtaining all necessary governmental permits and necessary permission from landowners or other persons;
 - 1.6 Determine whether the project is likely to interfere with the program or projects of other scholars and, if there is such likelihood, initiate negotiations to minimize such interference.
- II. In conducting research, the archaeologist must follow her/his scientific plan of research, except to the extent that unforeseen circumstances warrant its modification.
- III. Procedures for field survey or excavation must meet the following minimal standards:
- 3.1 If specimens are collected, a system for identifying and recording their proveniences must be maintained;
 - 3.2 Uncollected entities, such as environmental or cultural features, depositional strata, and the like, must be fully and accurately recorded by appropriate means, and their location recorded;
 - 3.3 The methods employed in data collection must be fully and accurately described. Significant stratigraphic and/or locational relationships among artifacts, other specimens, and cultural and environmental features must also be fully and accurately recorded;
 - 3.4 All records should be intelligible to other archaeologists. If terms lacking commonly held referents are used, they should be clearly defined;
 - 3.5 Insofar as possible, the interests of other researchers should be considered. For example, upper levels of a site should be scientifically excavated and recorded whenever feasible, even if the focus of the project is on underlying levels.
- IV. During accessioning, analysis, and storage of specimens and records in the laboratory, the archaeologist must take precautions to ensure that correlations between the specimens and the field records are maintained, so that provenience, contextual relationships, and the like are not confused or obscured.



- V. Specimens and research records resulting from a project must be deposited at an institution with permanent curatorial facilities, unless otherwise required by law.
- VI. The archaeologist has responsibility for appropriate dissemination of the results of her/his research to the appropriate constituencies with reasonable dispatch:
 - 6.1 Results reviewed as significant contributions to substantive knowledge of the past or to advancements in theory, method, or technique should be disseminated to colleagues and other interested persons by appropriate means, such as publications, reports at professional meetings, or letters to colleagues;
 - 6.2 Requests from qualified colleagues for information on research results directly should be honored, if consistent with the researcher's prior rights to publication and his/her other professional responsibilities;
 - 6.3 Failure to complete a full scholarly report within 10 years after completion of a field project shall be construed as a waiver of an archaeologist's right of primacy with respect to analysis and publication of the data. Upon expiration of such 10-year period or at such earlier time as the archaeologist shall determine not to publish the results, such data should be made fully accessible to other archaeologists for analysis and publication;
 - 6.4 While contractual obligations in reporting must be respected, archaeologists should not enter into a contract which prohibits the archaeologist from including her/his interpretations or conclusions in the contractual reports, or from preserving a continuing right to use the data after completion of the project;
 - 6.5 Archaeologists have an obligation to accede to reasonable requests for information from the news media.



City of Seal Beach



Growth Management Element

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Introduction

The City of Seal Beach is part of a large, fast-growing region. Assuring adequate levels of public service and maintaining a desirable quality of life through regulation of growth is the only option available to the City with certain jurisdictional, fiscal, and legal limits. A Growth Management Element establishes a plan for ensuring that future growth is coordinated with the provision of public services and facilities so that desirable levels of service standards and community qualities important to the citizens are maintained. This Element addresses growth management issues on a local level, but emphasizes the need for growth to be managed in a broader regional context. The goals, policies, and plan contained in this Element stem from considerable background research, which is summarized in the Growth Management Technical Report.

Purpose

The primary purpose of the Growth Management Element is to ensure that growth and development are based on the City's ability to provide an adequate traffic circulation system pursuant to the Orange County Division, League of California Cities' County-Wide Traffic Improvement and Growth Management Plan Component. This Element guides Seal Beach's participation in inter-jurisdictional and intra-jurisdictional planning efforts and establishes a goal to balance jobs and housing.

Statewide, the Growth Management Element is an optional element of the General Plan. However, once adopted, this Element carries the same force and effect as a required element and must be internally consistent with other elements of the General Plan. The County of Orange mandates the adoption of a Growth Management Element in order to implement Measure M goals.

Scope and Content

The Growth Management Element contains policies for planning and providing traffic improvements necessary for orderly growth and development. This Element presents policies and programs for establishing specific traffic level of service (LOS)



standards, developing mitigation programs, and developing phasing policies. Also presented are goals and policies related to coordinating and cooperating with other jurisdictions to manage growth, and goals and policies related to the balance between jobs and housing in the City.

This Element satisfies the growth management requirement of the Revised Traffic Improvement and Growth Management Ordinance (Measure M) of Orange County, and conforms to the guidelines for Growth Management Elements as set forth in the Countywide Growth Management Program Implementation Manual prepared by the County of Orange in April 1991.

Seal Beach is a largely developed community with most of its infrastructure already in place. For this reason it is considered a “developed community” for the purposes of Measure M. As a result, this Element does not need to address certain infrastructure issues, such as fire, police, and library facilities, required to be addressed by developing communities.

Consistency with Other General Plan Elements and Related Programs

A major goal of the Growth Management Element is to ensure that planning, management, and implementation of traffic improvements and public facilities are adequate to meet the current and projected needs of the City. While this goal is a high priority, it must be achieved while maintaining internal consistency among the other elements of the General Plan as required by state law. Therefore, the Growth Management Element does not replace or supersede any of the other General Plan Elements; instead the Element addresses, amplifies, and supports the goals and policies that are included in the other General Plan elements and establishes new goals and policies where necessary.

The Growth Management Element is implemented through various coordinated programs developed to support and carry out its goals, objectives, and policies. In addition, this Element minimizes duplication between Measure M and Congestion Management Program (CMP) requirements (see “Related Plans and Programs” below).



Related Plans and Programs

Many federal, state, regional, and Orange County plans and laws affect growth management in the City. Broadly, they include:

- The Orange County Growth Management Plan
- The Southern California Association of Governments (SCAG) Growth Management Plan
- The South Coast Air Quality Management Plan (AQMP)
- State Assembly Bill 471 (Proposition 111 - Congestion Management)
- Measure M (Orange County)

Of all of these measures, Measure M will have the most direct and significant impact on the City's Growth Management Element. Each of these plans and/or systems is described below.

Orange County Growth Management Plan Element

The stated purpose of the Orange County Growth Management Plan Element is to ensure that planning, management, and implementation of traffic improvements and public facilities are adequate to meet the current and projected needs of Orange County. The plan sets forth goals, objectives, policies, and implementation programs for growth management. The goals of the plan are summarized as follows:

... to reduce traffic congestion, ensure that adequate transportation facilities, public facilities, equipment and services are provided for existing and future residents and to protect the natural environment of Orange County.

Of the seven major policies in the Plan, the following five apply to the City of Seal Beach:

1. ***Development Phasing.*** Development will be phased according to Comprehensive Phasing Plans (CPPs) adopted by the County. Phasing will be linked to roadway and public facility capacities.
2. ***Balanced Community Development.*** Development will be balanced to encourage employment of local residents in employment and employee housing, in the County generally, and in individual Growth Management Areas (GMAs).



3. ***Traffic Level of Service:*** This policy requires developers to make improvements to intersections significantly impacted by development. A Level of Service “D” must be attained at affected intersections. A “significant impact” is generally defined in terms of increases in intersection capacity utilization and levels of service. The policy also establishes a “deficient intersections list” and establishes a developer fee program to pay for improving affected intersections on a pro-rata basis.
4. ***Traffic Improvement Programs:*** The Plan provides for the establishment of a comprehensive traffic improvement program to ensure that all new development provides necessary transportation facilities and intersection improvements as a condition of development approval.
5. ***Public Facility Plans:*** The Plan requires comprehensive public facility plans for fire, sheriff/police, and library services. New development shall participate on a pro-rata basis.

To implement its policies, the Plan sets forth four implementation programs, including:

1. ***Growth Management Areas (GMAs):*** The plan calls for the establishment of growth management areas to implement the comprehensive phasing plans.
2. ***Facility Implementation Plans (FIPs):*** These plans address the financing of transportation, police/sheriff, fire, library facilities, and flood control for each GMA in accordance with the goals, objectives, and policies of the Growth Management Plan Element.
3. ***County-wide Implementation of Growth Management Plan:*** This involves an annual evaluation of compliance with development phasing, planned roadway and/or public facility development, and maintenance of service levels.
4. ***Traffic Improvements/Facility Development Agreements:*** This program requires that any public service or traffic improvements implemented through development agreements must be consistent with the overall Orange County Growth Management Plan.

The Orange County Growth Management Plan Element further provides that additional implementation programs may be developed as deemed necessary by the County.



SCAG Growth Management Plan

The SCAG Growth Management Plan recommends ways to re-direct the region's growth to minimize congestion and better protect the environment. While SCAG has no authority to mandate implementation of its Growth Management Plan, some of the Plan's principal goals (such as improved jobs/housing balance) are being implemented through the Air Quality Management Plan (AQMP) under the authority of the South Coast Air Quality Management District.

South Coast Air Quality Management Plan

The South Coast Air Quality Management Plan mandates a variety of measures to reduce traffic congestion and improve air quality. Each iteration of the plan is an update of the previous plan and has a 20-year horizon. The 1997 Air Quality Management Plan was adopted by the Governing Board on November 15, 1996, and represents the current policy for achieving clean air objectives. A 2003 Draft Air Quality Management Plan is currently under review. The City is subject to all AQMD requirements for local jurisdictions.

Assembly Bill 471 (Proposition 111)

Assembly Bill (AB) 471, as subsequently modified by Assembly Bill 1791, requires every urbanized city and county with a population of 50,000 or more to adopt a Congestion Management Plan (CMP) to reduce traffic congestion. A city or county that does not comply with the CMP requirement will lose gasoline sales tax revenues to which it would otherwise be entitled. Seal Beach completed a CMP for its 1991 submittal to Orange County, and will continue to work with the County on annual updates to the CMP.

The CMP requirements include traffic level of service (LOS) standards, a trip reduction program, and a 7-year capital improvement program for traffic and transit. Many of the AB 471 requirements are the same as or similar to the requirements of Measure M (discussed immediately below). The County has attempted to reconcile overlapping requirements through the Measure M implementation guidelines (see County-wide Growth Management Program Revised Traffic Improvement and Growth Management Ordinance Implementation Manual).



Measure M

Orange County voters approved Measure M in 1990 to allocate additional funds to provide needed transportation facilities in Orange County. Measure M specifically authorized a half cent retail sales tax increase for 20 years effective April 1, 1991. The monies received from Measure M will be returned to local jurisdictions for use on local and regional transportation improvements and maintenance projects. The tax is estimated to raise approximately \$3.1 billion County-wide over the 20-year period.

The County of Orange is divided into 11 GMAs, and that portion of the City of Seal Beach north of the San Diego (I-405) Freeway is currently contained within GMA #2 along with the cities of Los Alamitos, Cypress, La Palma, Stanton, and portions of Westminster, Garden Grove, Anaheim, and Santa Ana. In addition, that portion of the City south of the I-405 Freeway is located within GMA #6 along with the cities of Huntington Beach, Fountain Valley, and portions of Westminster. The estimated average annual allocation per GMA is between \$450,000 and \$850,000. To qualify for these revenues, Measure M requires each city to comply with the Orange County Division, League of California Cities County-Wide Traffic Improvement and Growth Management Program, which was included by reference in the Measure M Ordinance. The County-wide Growth Management Program is designed to achieve a cooperative process among local Orange County jurisdictions to coordinate and implement traffic improvements and achieve stronger planning on a County-wide basis.

Through September 30, 2002, the City received \$2,196,016 in Measure M funding.

To receive its allocation of Measure M funds, the City must submit a statement of compliance with the Growth Management components, which are summarized as follows:

- Adoption of a Growth Management Element that includes:
 - Traffic Level of Service (LOS) standards.
 - Development Mitigation Program.
 - Development Phasing and Annual Monitoring Program.
- Participation in Inter-Jurisdictional Planning Forums.
- Development of a 7-Year Capital Improvement Program.
- Address Housing Options and Job Opportunities.



- Adopt a Transportation Demand Management Ordinance.



Planned Transportation Improvements

As the City of Seal Beach and the entire southern California region continue to grow, additional demands will be placed on the transportation network within the City. The following major transportation programs and projects have been identified as part of the Seal Beach General Plan to help alleviate future traffic congestion:

- Efficient utilization of existing roadway capacity through Transportation System Management (TSM) strategies.
- Promotion of increased ridership through alternate means of travel, such as expansion of public transit routes, van-pooling, and carpooling.
- Coordination of circulation system improvements with adjoining cities through the Inter-Jurisdictional Forum (IJF) process.
- Widening the overpass of Seal Beach Boulevard at the I-405 Freeway.
- Adoption of the recommendations presented in the 2002 Traffic Study by Kunzman & Associates as revised in March, 2003 for the City of Seal Beach, which study forms the basis for the updated Circulation Element of the City's General Plan.



Growth Management Issues, Needs, Opportunities, and Constraints

While the City of Seal Beach has nearly reached its capacity for new development, it must be recognized as part of a large, fast-growing region. The pace of City and regional new development has begun to outstrip the ability of infrastructure to adequately support that development. The Growth Management Element addresses issues associated with rapid growth, traffic congestion, and traffic facilities.

- The County's constant rate of growth and the impacts of growth in adjacent jurisdictions throughout Los Angeles and Orange Counties have created a necessity for a regional approach to transportation growth management.
- A significant portion of transportation problems in the County stems from the inadequate capacity of the freeway system to serve peak period travel demands. This lack of capacity results in poor levels of service characterized by severe congestion and low travel speeds during peak hours. The most severe local congestion occurs at the junction of the I-405 and the I-605 Freeways.
- Arterial highways are intended to handle the bulk of intra-regional traffic and complement the freeway system and local street network. As congestion increases on the freeways, more drivers utilize the arterial system, particularly those that parallel the freeway or those arterials serving the same trip destination as the freeway. Consequently, these arterials, such as Westminster Avenue and Pacific Coast Highway are becoming increasingly congested and receive heavy traffic volumes well in excess of their designed capacity. This situation is of special concern on those arterials that provide access to the freeway system.
- The City's transportation system is greatly influenced by impacts on the I-405 Freeway and State Route 1 (Pacific Coast Highway) which run through the City.
- Traffic congestion in Seal Beach is as much a regional problem as it is a local problem. The development that occurs in neighboring jurisdictions and throughout the Los Angeles/Orange County region affects the freeways and many of the major arterial streets that traverse the City of Seal Beach. Thus, it is not possible for the City to



fully address growth management issues in isolation, but requires cooperation with adjoining jurisdictions.



Goals and Policies

The following goals and policies are designed to meet all the Growth Management Element requirements for developed communities as set forth by Measure M and elaborated on by the County-wide Growth Management Program Implementation Manual.

Traffic Congestion

Traffic congestion is a problem on local streets, as well as arterials and regional freeways. In particular, heavy traffic volumes in Seal Beach exist along Westminster Avenue, Pacific Coast Highway, and Seal Beach Boulevard north of the San Diego (I-405) Freeway. Traffic volumes along the I-405 corridor are also extremely heavy and cause significant slowing near the intersection with the I-605 Freeway.

Goal 1: Reduce Traffic Congestion

- Policy 1.1 - Within one year of the issuance of the first building permit for a development project, or within two years of the issuance of the first grading permit for said development project, whichever occurs first, ensure that the necessary improvements to transportation facilities to which the project contributes measurable traffic are constructed and completed to attain level of service (LOS) “D” at the intersections under the sole control of the City. Intersections under the jurisdiction of another city, the county, the state, or those included on the deficient intersection list established by the City and compiled by the Growth Management Areas (GMAs) in which the City participates (see Policy 3.1) are exempt from this requirement.
- Policy 1.2 - Level of service (LOS) will be measured by the Traffic Level of Service Policy Implementation Manual established by the local transportation authority.
- Policy 1.3 - All development contributing measurable impacts to intersections on the deficient intersection list and all projects contributing cumulatively, or individually, 10% or more of the traffic using an intersection shall be assessed a mitigation fee determined by the jurisdictions in



the GMA and locally administered as part of the City's capital improvement program.

- Policy 1.4 - All development contributing measurable impacts to intersections on the City's Traffic Impact Fee Study and all projects contributing cumulatively, or individually, 5% or more of the traffic using an intersection shall be assessed a mitigation fee determined by the City and locally administered as part of the City's capital improvement program.
- Policy 1.5 - Promote traffic reduction strategies through transportation demand management (TDM) measures as adopted by City ordinance, currently impacting employers of 100 or more persons.
- Policy 1.6 - Investigate traffic reduction strategies through Transportation Demand Management (TDM) measures adopted by City ordinance to ultimately require businesses employing more than 25 persons to be subject to those provisions.

Adequate Transportation Facilities

Many of the regional transportation facilities are not adequately sized to accommodate existing and projected growth. Largely in response to this situation, Orange County voters approved Measure M in 1990 to allocate additional funds to provide needed transportation facilities.

Goal 2: Ensure Adequate Transportation Facilities Are Provided for Existing and Future Inhabitants of the City

- Policy 2.1 - Require all new development to pay its share of the street improvement costs associated with the development, including regional traffic mitigation.
- Policy 2.2 - New revenues generated from Measure M shall not be used to replace private developer funding that has been committed for any development project.
- Policy 2.3 - The City will develop mechanisms to collect Transportation System Improvement Program (TSIP) fees for improvements within its boundaries and shall work with adjacent jurisdictions to determine acceptable impact fees within the growth management areas. These fees may



be assessed as necessary, in addition to the City's TSIP fees, to cover shortfalls that may not be generated by the established fee program.

- Policy 2.4 - A deficient intersection fund shall be established by the City to make improvements to those intersections necessary to achieve the LOS standard established in this Element.
- Policy 2.5 - All new development shall be required to establish a development phasing program that phases approval of development commensurate with required improvements to roadway capacity. A phasing plan shall include an overall buildout development plan that can demonstrate the ability of the infrastructure to support the planned development.
- Policy 2.6 - Development phasing of new projects shall be a component of the development review and entitlement process and shall be approved prior to issuance of building or grading permits.
- Policy 2.7 - The City shall monitor the implementation of the development phasing program of each of the new development projects on an annual basis and prepare a report indicating the status of development approval and required traffic improvements and relationships between them.
- Policy 2.8 - A performance monitoring program shall be developed to provide an annual evaluation of compliance with development phasing and evaluation of the maintenance of transportation service levels.
- Policy 2.9 - A seven-year capital improvement program shall be adopted and maintained in conformance with the provisions of Measure M for the purpose of maintaining adopted level of service standards established in this Element. The City currently adopts a seven-year capital improvement program for Measure M funded programs and projects and a five-year Capital Improvement Program/Budget for non-Measure M funded projects.



Inter-Jurisdictional Coordination/Cooperation

Traffic congestion in Seal Beach is both a regional and local problem. The development that occurs in neighboring jurisdictions and throughout the County has effects on the freeways and many of the major arterials that traverse the City of Seal Beach. Thus, the City cannot fully address growth management issues in isolation from other jurisdictions.

Goal 3: Cooperate with Neighboring Jurisdictions and the County of Orange and County of Los Angeles to Achieve Reduction in Regional Traffic Congestion

- Policy 3.1 - The City shall participate in inter-jurisdictional planning forums within its established growth management areas as adopted by the Regional Advisory Planning Council and will continue to participate in forums with neighboring or affected jurisdictions to address transportation or other planning issues.
- Policy 3.2 - The City will continue to cooperate with the County of Orange in annually updating its Congestion Management Plan pursuant to the requirements of AB 471 in order to continue to receive its share of state gasoline sales tax revenues.

Jobs/Housing Balance

One of the major causes of traffic congestion is land use patterns that hinder the ability of people to live and work in the same area. Long commutes can over-burden traffic infrastructure and diminish quality of life. Creating communities where people can live *and* work in relatively close proximity shortens commutes and encourages the use of alternative forms of transportation to and from employment.

Goal 4: Strive to Develop and Maintain a Balance between Jobs and Housing in Seal Beach

- Policy 4.1 - To the extent feasible, utilize information on the jobs/housing balance in the City and region as a factor in land use decision-making.



- Policy 4.2 – The City shall adopt all goals and policies as set forth in the Housing Element of its General Plan.

Consistency with General Plan Elements

Goal 5: Assure Consistency with the Goals and Policies Reflected in the Circulation and Land Use Elements of the City of Seal Beach General Plan

- Policy 5.1 - The City will implement the goals and policies defined in these elements to ensure a circulation system that adequately serves the development intensity anticipated in the Land Use Element.



The Growth Management Plan

The City's Growth Management Plan includes all of the components required for developed communities by Measure M, the Traffic Improvement and Growth Management Ordinance. Additional implementation programs independent of this Element will be required to implement the Growth Management Plan.

Traffic Level of Service Goals

Policy 1.1 of this Element requires developers to make necessary improvements to the circulation system, which are affected by their development, so as to maintain acceptable LOS at intersections and on roadway links under City control. Roadway expansions will be planned as part of the capital improvement program and phased according to the Comprehensive Phasing Program. The LOS goals will be enforced through coordination of approval conditions and monitored annually through a Performance Monitoring Program.

Achievement of the adopted levels of service standard and implementation of exacted transportation improvements shall take into consideration extraordinary transportation circumstances that may impact identified intersections and/or timing of the required improvements. An example of an extraordinary circumstance would be when arterial roadways serve as substitute freeway access (thus impacting LOS performance) while planning and construction of additional freeway improvements are underway.

Development Mitigation Program

The City has established a Development Mitigation Program based on Orange County Transportation Authority (OCTA) time tables ensuring that all new development pays its share of needed transportation improvements to the City's roadway network associated with that development. Participation shall be on a pro-rata basis and will be required of all development projects except where an increased level of participation exceeding these requirements is established through development agreements or



other negotiated agreements. This monitoring is facilitated via a project specific mitigation plan.

The City will work to facilitate coordination of this Program through inter-jurisdictional forums to determine minimally acceptable impact fees for application within the growth management areas. The City will receive credit for existing traffic mitigation fee programs with regard to the GMA base level fee.

Comprehensive Phasing Program

The City shall prepare a Comprehensive Phasing Program (CPP) based on Orange County Transportation Authority time tables. The purpose of this Program is to assure, to the extent feasible, that adequate infrastructure (roadways and utilities) is constructed as development occurs by linking the ability of the development to proceed to:

- construction of the improvement(s) by others,
- construction of the improvement(s) by the developer, or
- by the developer's timely provision of the appropriate funding to the City so that the provision of these facilities is in balance with the demand for need.

While the Comprehensive Phasing Program will provide plans for new facilities, the Performance Monitoring Program will provide annual evaluation of compliance with phasing plans in order for development to continue. The CPP shall provide reasonable lead time (one year from first building permit or two years from first grading permit) to design and construct specific transportation improvements.

Performance Monitoring Program

The City shall prepare a Performance Monitoring Program based on OCTA time tables. The Performance Monitoring Program will establish a system for annual evaluation of compliance with development phasing allocations. Under this Program, roadway and other transportation facility improvements or funding must actually be provided in order for new development to continue. If the improvements/ funding are not provided, development shall be deferred until compliance with the provisions of this Program is achieved.



The Performance Monitoring Program will provide an annual evaluation of the maintenance of transportation service levels. Annual traffic reports prepared under this Program shall utilize data collected within three months of preparation of the report. In the event the Performance Monitoring Program identifies one or more service level deficiencies, measures shall be implemented to correct identified deficiencies.

Capital Improvement Program

The City shall establish a Capital Improvement Program (CIP) for transportation system improvements based on OCTA time tables. The purpose of the Capital Improvement Program is to estimate future development over a seven-year period and determine the necessary infrastructure and costs required for new development. The Capital Improvement Program will be closely linked with the Comprehensive Phasing Plans.

The City will determine the capital projects needed to meet and maintain the City's adopted traffic level of service and performance standards. Capital financing programming will be based on proposed development to be constructed during (at a minimum) the following seven-year period.

Inter-Jurisdictional Cooperation

The City of Seal Beach will continue to be involved in inter-jurisdictional coordination for various purposes, including:

- Cooperating with the County of Orange, the Orange County Transportation Authority (OCTA), and other local jurisdictions through the Regional Advisory and Planning Council (RAPC), or other appointed bodies, on the implementation of Measure M and the development of future revisions.
- Working with inter-jurisdictional forums (such as the City-County Coordinating Committee and Southeast Los Angeles/West Orange County Coordinating Committee) to make sure the City's fees are consistent with minimally acceptable impact fees for application within the larger growth management areas.
- Participating in the inter-jurisdictional planning forums at the growth management area (GMA) level to discuss implementation of traffic improvements, cooperative land



use planning, and appropriate mitigation measures for developments with multi-jurisdictional impacts.

- Working with the inter-jurisdictional forums to develop strategies to bring about greater jobs/housing balance at the sub-regional level.
- Cooperating with the County of Orange in implementing the Facility Implementation Plans and collaborating in the Development Monitoring Program.
- Cooperating with state, county, and local governments in planning and implementing the City's Circulation Element, and coordinating efforts to ensure orderly development.
- Coordinating population, housing, employment, and land use projections with the State Department of Finance, the Southern California Association of Governments, the Orange County Development Monitoring Program, and appropriate school and water districts.

Comprehensive Development Plans for Proposed Larger Projects

Seal Beach will require that any proposed new, large development prepare a comprehensive development plan and environmental impact analysis. A Specific Plan is an example of a comprehensive development plan for large projects. This will allow the City to anticipate the impacts of large projects prior to development of any portion of the project, and permit more time to plan for public services and facilities needed to support the project.

Coordination with Adjacent Jurisdictions

Apart from coordination with sub-regional inter-jurisdictional forums (such as the City-County Coordinating Committee and the Southeast Los Angeles/West Orange County Coordinating Committee), the City will work separately with other cities and agencies in the immediate area to develop mutual agreements for review and possible conditioning of development projects.



Appendix A

Definitions

For the purposes of the Growth Management Element, the following terms are defined below:

1. ***Capital Improvement Program (CIP)*** shall mean a listing of capital projects needed to meet, maintain, and improve a jurisdiction's adopted Traffic Level of Service and Performance Standards. The CIP shall include approved projects and an analysis of the costs of the proposed projects, as well as a financial plan for providing the improvements.
2. ***Comprehensive Phasing Program (CPP)*** shall mean a road and public facilities improvement and financing plan that attains the level of service requirements of this element. With regard to road improvements, a CPP must include level of service requirements and take into account measurable traffic impacts on the circulation system.
3. ***Critical Movement*** shall mean any of the conflicting through or turning movements at an intersection which determine the allocation of green signal time.
4. ***Development Phasing Program*** shall mean a program that establishes the requirement that building and grading permits shall be approved or issued in a manner that assures implementation of required transportation and public facility improvements. The City shall specify the order of improvements and the number of dwelling units based, at a minimum, on mitigation measures adopted in conjunction with environmental documentation and other relevant factors.
5. ***Deficient Intersection Fund*** shall mean a trust fund established to implement necessary improvements to existing intersections that do not meet the Traffic Level of Service Policy.
6. ***Deficient Intersection List*** shall mean a list of intersections that:



- a. Do not meet the Traffic Level of Service Policy for reasons that are beyond the control of the City (e.g., ramp metering effects, traffic generated outside the City's jurisdiction, etc.); and
 - b. Are not brought into compliance with the LOS standard in the most current Seven-Year Capital Improvement Program. Additional intersections may be added by the City to the Deficient Intersection List only as a result of ordinances that are beyond the control of the City.
7. ***Growth Management Area (GMAs)*** shall mean subregions of the County established by the City-County Coordination Committee (or successor) to promote inter-jurisdictional coordination in addressing infrastructure concerns and implementing needed improvements.
8. ***Growth Management Element*** shall mean the Growth Management Element of the City General Plan as required by the Revised Traffic Improvement and Growth Management Ordinance (Measure M).
9. ***Local Transportation Authority*** as currently designated by the Board of Supervisors shall mean the Orange County Transportation Authority.
10. ***Measurable Traffic*** shall mean a traffic volume resulting in a 1% increase in the sum of the critical movements at an intersection.
11. ***Performance Monitoring Program (PMP)*** shall mean a comprehensive road improvement and financing plan that monitors the level of service requirements in this Element while taking into account measurable traffic impacts on the circulation system. This Program will annually review the status of public and private roadway improvements associated with the Seven-Year Capital Improvement Program and Development Phasing Programs to assure that appropriate actions are being taken to achieve the Level of Service standards set forth in this Element.
12. ***Sole Control*** shall mean under the direct control of the single public agency; for purposes of this Element, the City of Seal Beach is the single public agency exercising sole control over certain transportation system improvements.



Appendix B

Sources

1. Assembly Bill 471 (Proposition 111) as amended by AB 1791.
2. *"Countywide Growth Management Program Implementation Manual,"* Orange County, April 1991.
3. *"Countywide Traffic Improvement and Growth Management Plan Component,"* Orange County Division, League of California Cities, 1989.
4. *"Development Monitoring Program, Vol. II,"* County of Orange, 1991.
5. *"Final 1991 Air Quality Management Plan, South Coast Air Basin,"* Southern California Association of Governments, July 1991.
6. *"General Plan Issue Analysis - Growth/ Congestion Management,"* City of Seal Beach, April 6, 1992.
7. *"Growth Management Element,"* County of Orange General Plan.
8. *"Growth Management Element - Technical Report,"* City of Seal Beach, April 10, 1992.
9. *"Growth Management and Transportation Demand Working Paper,"* Southern California Association of Governments, January 1992.
10. *"Growth Management and Transportation Demand Task Force Final Report,"* Southern California Association of Governments, June 1990.
11. *"Public Facilities/ Growth Management Element,"* City of Dana Point, January 1991.
12. *"Regional Growth Management Plan,"* Southern California Association of Governments, 1989.



13. *"Revised Traffic Improvement and Growth Management Ordinance, (Measure M),"* Orange County, November 1990.
14. *"South Coast Air Quality Management Plan,"* South Coast Air Quality Management District, July 1997.
15. *"Traffic Impact Fee Study, Final Report,"* City of Seal Beach, prepared by DKS Associates, December 6, 1991.
16. *"Traffic Analysis"* prepared by Kunzman and Associates for Seal Beach Circulation Element, March 2003.



General Plan Glossary

Abbreviations

ADT	Average daily trips made by vehicles or persons in a 24-hour period
ALUC	Airport Land Use Commission
CC&Rs	Covenants, Conditions, and Restrictions
CDBG	Community Development Block Grant
CEQA	California Environmental Quality Act
CIP	Capital Improvements Program
CMP	Congestion Management Plan
CNEL	Community Noise Equivalent Level
dB	Decibel
EIR	Environmental Impact Report (State)
EIS	Environmental Impact Statement (Federal)
FAR	Floor Area Ratio
FIR	Fiscal Impact Report
FIRM	Flood Insurance Rate Map
GOPR	Governor's Office of Planning and Research, State of California
LAFCO	Local Agency Formation Commission
PUD	Planned Unit Development
UBC	Uniform Building Code

Acres, Gross

The entire acreage of a site. Most communities calculate gross acreage to the centerline of proposed bounding streets and to the edge of the right-of-way of existing or dedicated streets.

Acres, Net

The portion of a site that can actually be built upon. The following generally are not included in the net acreage of a site: public or private road rights-of-way, public open space, and floodways.

Affordable Housing

Housing capable of being purchased or rented by a household with very low, low, or moderate income, based on a household's ability to make monthly payments necessary to obtain housing. "Affordable to low- and moderate-income households" means that at least 20 percent of the units in a development will be sold or rented to lower income households, and the remaining units to either lower or moderate income households. Housing units for lower income households must sell or rent for a monthly cost not greater than



30 percent of 60 percent of area median income as periodically established by HCD. Housing units for moderate income must sell or rent for a monthly cost not greater than 30 percent of area median income.

Agricultural Preserve

Land designated for agriculture or conservation.

Agriculture

Use of land for the production of food and fiber, including the growing of crops and/or the grazing of animals on natural prime or improved pasture land.

Airport-Related Use

A use that supports airport operations including, but not limited to, aircraft repair and maintenance, flight instruction, and aircraft chartering.

Ambient

Surrounding on all sides; used to describe measurements of existing conditions with respect to traffic, noise, air, and other environments.

Annex

v.: To incorporate a land area into an existing district or municipality, with a resulting change in the boundaries of the annexing jurisdiction.

Aquifer

An underground, water-bearing layer of earth, porous rock, sand, or gravel through which water can seep or be held in natural storage. Aquifers generally hold sufficient water to be used as a water supply.

Architectural Control; Architectural Review

Regulations and procedures requiring the exterior design of structures to be suitable, harmonious, and in keeping with the general appearance, historic character, and/or style of surrounding areas. A process used to exercise control over the design of buildings and their settings.

Arterial

Medium-speed (30 to 40 mph), medium-capacity (10,000 to 35,000 average daily trips) roadway that provides intra-community travel and access to the county-wide highway system. Access to community arterials should be provided at



collector roads and local streets, but direct access from parcels to existing arterials is common.

Attainment

Compliance with state and federal ambient air quality standards within an air basin.

Base Flood

In any given year, a 100-year flood that has a one percent likelihood of occurring and is recognized as a standard for acceptable risk.

Bikeways

A term that encompasses bicycle lanes, bicycle paths, and bicycle routes. Backbone bikeways are major throughway trails that connect to regional trails. Secondary bikeways connect to backbone trails.

Blight

A condition of a site, structure, or area that may cause nearby buildings and/or areas to decline in attractiveness and/or utility. The Community Redevelopment Law (*Health and Safety Code* §33031 and §33032) contains a definition of blight used to determine eligibility of proposed redevelopment project areas.

Blueline Stream

A watercourse shown as a blue line on a U.S. Geological Service topographic quadrangle map.

Bond

An interest-bearing promise to pay a stipulated sum of money, with the principal amount due on a specific date. Funds raised through the sale of bonds can be used for various public purposes.

Brownfield

An area with abandoned, idle, or under-used industrial and commercial facilities where expansion, redevelopment, or reuse is complicated by real or perceived environmental contamination.

Buffer Zone

An area of land separating two distinct land uses that acts to soften or mitigate the effects of one land use on the other.



Buildout; Build-out

Development of land to its full potential or theoretical capacity as permitted under current or proposed planning or zoning designations.

Busway

A vehicular right-of-way or portion thereof – often an exclusive lane – reserved exclusively for buses.

California Environmental Quality Act (CEQA)

A state law requiring state and local agencies to regulate activities with consideration for environmental protection. If a proposed activity has the potential for a significant adverse environmental impact, an Environmental Impact Report (EIR) must be prepared and certified as to its adequacy before taking action on the proposed project.

Caltrans

California Department of Transportation

Capital Improvement Program (CIP)

A program established by a city or county government and reviewed by its planning commission, which schedules permanent improvements, usually for a minimum of five years in the future, to fit the projected fiscal capability of the local jurisdiction. The program generally is reviewed annually for conformance to and consistency with the General Plan.

Channelization

(1) The straightening and/or deepening of a watercourse for purposes of storm runoff control or ease of navigation. Channelization often includes lining of stream banks with a retaining material such as concrete. (2) At the intersection of roadways, the directional separation of traffic lanes through the use of curbs or raised islands that limit the paths that vehicles may take through the intersection.

Clustered Development

Development in which a number of dwelling units are placed in closer proximity than usual, or are attached, with the purpose of retaining an open space area.

Community Development Block Grant (CDBG)

A grant program administered by the U.S. Department of Housing and Urban Development (HUD) on a formula basis for entitlement communities, and by the State Department of Housing and Community Development (HCD) for



non-entitled jurisdictions. This grant allots money to cities and counties for housing rehabilitation and community development, including public facilities and economic development.

Community Facilities District

Under the Mello-Roos Community Facilities Act of 1982 (§53311, et seq.), a legislative body may create within its jurisdiction a special tax district that can finance tax-exempt bonds for the planning, design, acquisition, construction, and/or operation of public facilities, as well as public services for district residents. Special taxes levied solely within the district are used to repay the bonds.

Community Noise Equivalent Level (CNEL)

A 24-hour energy equivalent level derived from a variety of single-noise events, with weighting factors of 5 and 10 dBA applied to the evening (7:00 p.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) periods, respectively, to allow for the greater sensitivity to noise during these hours.

Community Parks

Larger than neighborhood parks and designed to serve the needs of a broader age group; generally range in size from 5 to 30 acres.

Community Redevelopment Agency (CRA)

A local agency created under California Redevelopment Law (*Health & Safety Code* §33300, et seq.), or a local legislative body that has been elected to exercise the powers granted to such an agency for the purpose of planning, developing, re-planning, redesigning, clearing, reconstructing, and/or rehabilitating all or part of a specified area with residential, commercial, industrial, and/or public (including recreational) structures and facilities. The redevelopment agency's plans must be compatible with adopted community general plans.

Concurrency

Installation and operation of facilities and services needed to meet the demands of new development simultaneous with the development.

Condominium

A structure of two or more units, the interior spaces of which are individually owned; the balance of the property



(both land and building) is owned in common by the owners of the individual units.

Congestion Management Plan (CMP)

A mechanism employing growth management techniques, including traffic level of service requirements, standards for public transit, trip reduction programs involving transportation systems management and jobs/housing balance strategies, and capital improvement programming for the purpose of controlling and/or reducing the cumulative regional traffic impacts of development.

Consistency, Consistent With

Free from significant variation or contradiction. The various diagrams, text, goals, policies, and programs in the general plan must be consistent with each other, not contradictory or preferential. The term “consistent with” is used interchangeably with “conformity with.” The courts have held that the phrase “consistent with” means “agreement with; harmonious with.” Webster defines “conformity with” as meaning harmony, agreement when used with “with.” The term “conformity” means in harmony therewith or agreeable to (§58 Ops. Cal. Atty. Gen. 21, 25 [1975]). California state law also requires that a general plan be internally consistent and also requires consistency between a general plan and implementation measures such as the zoning ordinance. As a general rule, an action program or project is consistent with the general plan if, considering all its aspects, it will further the objectives and policies of the general plan and not obstruct their attainment.

Covenants, Conditions, and Restrictions (CC&Rs)

A term used to describe restrictive limitations that may be placed on property and its use, and which usually are made a condition of holding title or lease.

Cul-de-sac

A short street or alley with only a single means of ingress and egress at one end and with a large turnaround at its other end.

Cumulative Impact

As used in CEQA, the total impact resulting from the accumulated impacts of individual projects or programs over time.



dB

Decibel; a unit used to express the relative intensity of a sound as it is heard by the human ear.

dBA

The “A-weighted” scale for measuring sound in decibels; weighs or reduces the effects of low and high frequencies in order to simulate human hearing. Every increase of 10 dBA doubles the perceived loudness though the noise is actually ten times more intense.

Dedication

The turning over by an owner or developer of private land for public use, and the acceptance of land for such use by the governmental agency having jurisdiction over the public function for which it will be used. Dedications for roads, parks, school sites, or other public uses often are made conditions for approval of a development by a city or county.

Dedication, In lieu of

Cash payments that may be required of an owner or developer as a substitute for a dedication of land, usually calculated in dollars per lot, and referred to as in lieu fees or in lieu contributions.

Defensible space

(1) In fire fighting and prevention, a 30-foot area of non-combustible surfaces separating urban and wildland areas.
(2) in urban areas, open spaces, entry points, and pathways configured to provide maximum opportunities to rightful users and/or residents to defend themselves against intruders and criminal activity.

Density, Residential

The number of permanent residential dwelling units per acre of land. Densities specified in the General Plan may be expressed in units per gross acre or per net developable acre.

Density Bonus

The allocation of development rights that allows a parcel to accommodate additional square footage or additional residential units beyond the maximum for which the parcel is zoned. Under *Government Code* §65915, a housing development that provides 20 percent of its units for lower income households, or ten percent of its units for very low income households, or 50 percent of its units for seniors, is entitled to a density bonus and other concessions.



Design Review, Design Control

The comprehensive evaluation of a development and its impact on neighboring properties and the community as a whole, from the standpoint of site and landscape design, architecture, materials, colors, lighting, and signs, in accordance with a set of adopted criteria and standards. “Design *control*” requires that certain specific things be done and that other things not be done. Design control language is most often found within a zoning ordinance. “Design *review*” usually refers to a system set up outside the zoning ordinance whereby projects are reviewed against certain standards and criteria by a specially established design review board or committee.

Developable Acres, Net

The portion of a site that can be used for density calculations. Some communities calculate density based on gross acreage. Public or private road rights-of-way are not included in the net developable acreage of a site.

Developable Land

Land that is suitable as a location for structures and that can be developed free of hazards to, and without disruption of, or significant impact on, natural resource areas.

Development Agreement

A legislatively approved contract between a jurisdiction and a person having legal or equitable interest in real property within the jurisdiction (California *Government Code* §65865, et seq.) that “freezes” certain rules, regulations, and policies applicable to development of a property for a specified period of time, usually in exchange for certain concessions by the owner.

Dwelling Unit

A room or group of rooms (including sleeping, eating, cooking, and sanitation facilities, but not more than one kitchen) that constitutes an independent housekeeping unit occupied or intended for occupancy by one household on a long-term basis.

Easement

Usually the right to use property owned by another for specific purposes or to gain access to another property. For example, utility companies often have easements on the private property of individuals to be able to install and maintain utility facilities.



Easement, Conservation

A tool for acquiring open space with less than full fee purchase, whereby a public agency buys only certain specific rights from the land owner. These may be positive rights (providing the public with the opportunity to hunt, fish, hike, or ride over the land), or they may be restrictive rights (limiting the uses to which the land owner may devote the land in the future).

Easement, Scenic

A tool that allows a public agency to use an owner's land for scenic enhancement, such as roadside landscaping or vista preservation.

Elderly

Persons age 62 and older.

Elderly Housing

Typically one- and two-bedroom apartments or condominiums designed to meet the needs of persons 62 years of age and older or, if more than 150 units, persons 55 years of age and older, and restricted to occupancy by them.

Eminent Domain

The right of a public entity to acquire private property for public use by condemnation and the payment of just compensation.

Emission Standard

The maximum amount of pollutant legally permitted to be discharged from a single source, either mobile or stationary.

Endangered Species

A species of animal or plant whose prospects for survival and reproduction are in immediate jeopardy from one or more causes.

Environment

Defined by CEQA as "the physical conditions that exist within the area which will be affected by a proposed project, including land, air, water, mineral, flora, fauna, noise, and objects of historic or aesthetic significance."

Environmental Impact Report (EIR)

A report required pursuant to the California Environmental Quality Act that assesses all the environmental characteristics of an area, determines what effects or impacts will result



if the area is altered or disturbed by a proposed action, and identifies alternatives or other measures to avoid or reduce those impacts.

Environmental Impact Statement (EIS)

Under the National Environmental Policy Act (NEPA), a statement on the effect of development proposals and other major actions that significantly affect the environment.

Erosion

(1) The loosening and transportation of rock and soil debris by wind, rain, or running water; (2) the gradual wearing away of the upper layers of earth.

Expansive Soils

Soils that swell when they absorb water and shrink as they dry.

Family

(1) Two or more persons related by birth, marriage, or adoption (U.S. Bureau of the Census), (2) an individual or a group of persons living together who constitute a *bona fide* single-family housekeeping unit in a dwelling unit, not including a fraternity, sorority, club, or other group of persons occupying a hotel, a lodging house, or an institution of any kind (California).

Fault

A fracture in the earth's crust forming a boundary between rock masses that have shifted.

Feasible

Capable of being accomplished in a successful manner within a reasonable time taking into account economic, environmental, social, and technological factors.

Fire Hazard Zone

An area where, due to slope, fuel, weather, or other fire-related conditions, the potential loss of life and property from a fire necessitates special fire protection measures and planning before development occurs.

Fiscal Impact Analysis

A projection of the direct public costs and revenues resulting from population or employment change to the local jurisdiction(s) in which the change is taking place. Enables lo-



cal governments to evaluate relative fiscal merits of general plans, specific plans, or projects.

Flood, 100-Year

The magnitude of a flood expected to occur on the average every 100 years, based on historical data. The 100-year flood has a 1/100, or one percent, chance of occurring in any given year.

Flood Insurance Rate Map(FIRM)

For each community, the official map on which the Federal Insurance Administration has delineated areas of special flood hazard and the risk premium zones applicable to that community.

Floodplain

The relatively level land area on either side of the banks of a stream regularly subject to flooding. That part of the floodplain subject to a one percent chance of flooding in any given year is designated as an “area of special flood hazard” by the Federal Insurance Administration.

Floodplain Fringe

All land between the floodway and the upper elevation of the 100-year flood.

Floodway

The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the “base flood” without cumulatively increasing the water surface elevation more than one foot. No development is allowed in floodways.

Floor Area, Gross

The sum of the horizontal areas of the several floors of a building measured from the exterior face of exterior walls, or from the centerline of a wall separating two buildings, but not including any space where the floor-to-ceiling height is less than six feet. Some cities exclude specific kinds of space (e.g., elevator shafts, parking decks) from the calculation of gross floor area.

Floor Area Ratio (FAR)

The gross floor area permitted on a site divided by the total net area of the site, expressed in decimals to one or two places. For example, on a site with 10,000 net sq.ft. of land area, a Floor Area Ratio of 1.0 will allow a maximum of



10,000 gross sq.ft. of building floor area to be built. On the same site, an FAR of 1.5 would allow 15,000 sq.ft. of floor area, and FAR of 2.0 would allow 20,000 sq.ft., and an FAR of 0.5 would allow only 5,000 sq.ft. Also commonly used in zoning, FARs typically are applied on a parcel-by-parcel basis as opposed to an average FAR for an entire land use or zoning district.

Greenbelts and Open Space Corridors

Recognizable expanses of undeveloped land that provide an attractive open space setting and a buffer between adjacent land uses.

Ground Failure

Ground movement or rupture caused by strong shaking during an earthquake. Includes landslide, lateral spreading, liquefaction, and subsidence.

Ground Shaking

Ground movement resulting from the transmission of seismic waves during an earthquake.

Groundwater

Water under the earth's surface, of ten confined to aquifers capable of supplying wells and springs.

Groundwater Recharge

The natural process of infiltration and percolation of rainwater from land areas or streams through permeable soils into water-holding rocks that provide underground storage ("aquifers").

Growth Management

The use by a community of a wide range of techniques in combination to determine the amount, type, and rate of development desired by the community and to channel that growth into designated areas. Growth management policies can be implemented through growth rates, zoning, capital improvement programs, public facilities ordinances, urban limit lines, standards for levels of service, and other programs.

Habitat

The physical location or type of environment in which an organism or biological population lives or occurs.



Hazardous Material

Any substance that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. The term includes, but is not limited to, hazardous substances and hazardous wastes.

High Occupancy Vehicle (HOV)

Any vehicle other than a driver-only automobile (e.g., a van-pool, a bus, or two or more persons to a car).

Historic Preservation

The preservation of historically significant structures and neighborhoods until such time as, and in order to facilitate, restoration and rehabilitation of the building(s) to a former condition.

Household

All those persons – related or unrelated – who occupy a single housing unit (see “Family”).

Households, Number of

The count of all year-round housing units occupied by one or more persons. The concept of *household* is important because the formation of new households generates the demand for housing. Each new household formed creates the need for one additional housing unit or requires that one existing housing unit be shared by two households. Thus, household formation can continue to take place even without an increase in population, thereby increasing the demand for housing.

Housing and Urban Development, U.S. Department of (HUD)

A Cabinet-level department of the federal government that administers housing and community development programs.

Housing Unit

The place of permanent or customary abode of a person or family. A housing unit may be a single-family dwelling, a multi-family dwelling, a condominium, a modular home, a mobile home, a cooperative, or any other residential unit considered real property under state law. A housing unit has, at least, cooking facilities, a bathroom, and a place to sleep.



It also is a dwelling unit that cannot be moved without substantial damage or unreasonable cost.

Impact Fee

A fee, also called a “development fee,” levied on the developer of a project by a city, a county, or other public agency as compensation for otherwise-unmitigated impacts the project will produce. Section 66000, et seq. specifies that development fees shall not exceed the estimated reasonable cost of providing the service for which the fee is charged. To lawfully impose a development fee, the public agency must verify its method of calculation and document proper restrictions on use of the fund.

Impacted Areas

Census tracts where more than 50 percent of the dwelling units house low- and very-low-income households.

Impervious Surface

Surface through which water cannot penetrate, such as roofs, roads, sidewalks, and paved parking lots. The amount of impervious surface increases with development and establishes the need for drainage facilities to carry the increased runoff.

Inclusionary Zoning

Provisions established by a public agency to require that a specific percentage of housing units in a project or development remain affordable to very-low- and low-income households for a specified period.

Industrial

The manufacture, production, and processing of consumer goods. Industrial is often divided into “heavy industrial” uses, such as construction yards, quarrying, and factories, and “light industrial” uses, such as research and development and less intensive warehousing and manufacturing.

Infill Development

Development of vacant land (usually individual lots or left-over properties) within areas that are already largely developed.

Infrastructure

Public services and facilities, such as sewage disposal systems, water supply systems, other utility systems, and roads.



Institutional Uses

(1) Publicly or privately owned and operated activities such as hospitals, convalescent hospitals, intermediate care facilities, nursing homes, museums, and schools and colleges; (2) churches and other religious organizations; and (3) other nonprofit activities of a welfare, educational, or philanthropic nature that cannot be considered residential, commercial, or industrial.

Intensity, Building

For residential uses, the actual number or the allowable range of dwelling units per net or gross acre. For non-residential uses, the actual or the maximum permitted floor area ratios (FARs).

Inter-Agency

Indicates cooperation between or among two or more discrete agencies in regard to a specific program.

Intermittent Stream

A stream that normally flows for at least 30 days after the last major rain of the season and is dry a large part of the year.

Issues

Important unsettled community matters or problems that are identified in a community's general plan and dealt with by the plan's objectives, policies, plan proposals, and implementation programs.

Jobs/Housing Balance; Jobs/Housing Ratio

The availability of affordable housing for employees. The jobs/housing ratio divides the number of jobs in an area by the number of employed residents. A ratio of 1.0 indicates a balance. A ratio greater than 1.0 indicates a net in-commute, less than 1.0 indicates a net out-commute.

Landmark

(1) A building, site, object, structure, or significant tree, having historical, architectural, social, or cultural significance and marked for preservation by the local, state, or federal government; (2) a visually prominent or outstanding structure or natural feature that functions as a point of orientation or identification.



Landslide

Downslope movement of soil and/or rock, which typically occurs during an earthquake or following heavy rainfall.

Land Use Classification

A system for classifying and designating the appropriate use of properties.

Lateral Spreading

Lateral movement of soil, often as a result of liquefaction during an earthquake.

Ldn

Day-Night Average Sound Level. The A-weighted average sound level for a given area (measured in decibels) during a 24-hour period with a 10 dB weighting applied to night-time sound levels. The Ldn is approximately numerically equal to the CNEL for most environmental settings.

Leq

The energy equivalent level, defined as the average sound level on the basis of sound energy (or sound pressure squared). The Leq is a “dosage” type measure and is the basis for the descriptors used in current standards, such as the 24-hour CNEL used by the State of California.

Level of Service (LOS) Standard

A standard used by government agencies to measure the quality or effectiveness of a municipal service, such as police, fire, or library, or the performance of a facility, such as a street or highway.

Level of Service (Traffic)

A scale that measures the amount of traffic that a roadway or intersection can accommodate, based on such factors as maneuverability, driver dissatisfaction, and delay.

- **Level of Service A** – Indicates a relatively free flow of traffic, with little or no limitation on vehicle movement or speed.
- **Level of Service B** – Describes a steady flow of traffic, with only slight delays in vehicle movement and speed. All queues clear in a single signal cycle.
- **Level of Service C** – Denotes a reasonably steady, high-volume flow of traffic, with some limitations on movement and speed, and occasional backups on critical approaches.



- **Level of Service D** – Designates the level where traffic nears an unstable flow. Intersections still function, but short queues develop and cars may have to wait through one cycle during short peaks.
- **Level of Service E** – Represents traffic characterized by slow movement and frequent (although momentary) stoppages. This type of congestion is considered severe, but is not uncommon at peak traffic hours, with frequent stopping, long-standing queues, and blocked intersections.
- **Level of Service F** – Describes unsatisfactory stop-and-go traffic characterized by “traffic jams” and stoppages of long duration. Vehicles at signalized intersections usually have to wait through one or more signal changes, and “upstream” intersections may be blocked by the long queues.

Liquefaction

The transformation of loose, wet soil from a solid to a liquid state, often as a result of ground shaking during an earthquake.

Live-Work Quarters

Buildings or spaces within buildings that are used jointly for commercial and residential purposes where the residential use of the space is secondary or accessory to the primary use as a place of work.

Local Agency Formation Commission (LAFCO)

A five- or seven-member commission within each county that reviews and evaluates all proposals for formation of special districts, incorporation of cities, annexation to special districts or cities, consolidation of districts, and merger of districts with cities. Each county’s LAFCO is empowered to approve, disapprove, or conditionally approve such proposals. The LAFCO members generally include two county supervisors, two city council members, and one member representing the general public. Some LAFCOs include two representatives of special districts.

Local Coastal Program (LCP)

A combination of a local government’s land use plans, zoning ordinances, zoning district maps, and (within sensitive coastal resources areas) other implementing actions that together meet the local requirements of, and implement the provisions and policies of, the California Coastal Act of 1976.



Local Coastal Program Land Use Plan

The relevant portion of a local government general plan or coastal element that details type, location, and intensity of land use, applicable resource protection and development policies, and, where necessary, implementation actions.

Low-Income Household

A household with an annual income usually no greater than 80 percent of the area median family income adjusted by household size, as determined by a survey of incomes conducted by a city or a county, or in the absence of such a survey, based on the latest available eligibility limits established by the U.S. Department of Housing and Urban Development (HUD) for the Section 8 housing program.

L10

A statistical descriptor indicating peak noise levels – the sound level exceeded ten percent of the time. It is a commonly used descriptor of community noise, and has been used in Federal Highway Administration standards and the standards of some cities and counties.

Mean Sea Level

The average altitude of the sea surface for all tidal stages.

Median Strip

The dividing area, either paved or landscaped, between opposing lanes of traffic on a roadway.

Mello-Roos Bonds

Locally issued bonds that are repaid by a special tax imposed on property owners within a “community facilities district” established by a governmental entity. The bond proceeds can be used for public improvements and for a limited number of services. Named after the program’s legislative authors.

Mineral Resource

Land on which known deposits of commercially viable mineral or aggregate deposits exist. This designation is applied to sites determined by the State Division of Mines and Geology as being a resource of regional significance, and is intended to help maintain the quarrying operations and protect them from encroachment of incompatible land uses.



Mixed Use

Properties on which various uses, such as office, commercial, institutional, and residential, are combined in a single building or on a single site in an integrated development project with significant functional interrelationships and a coherent physical design. A “single site” may include contiguous properties.

Mobile Home

A structure, transportable in one or more sections, built on a permanent chassis and designed for use as a single-family dwelling unit and which (1) has a minimum of 400 square feet of living space; (2) has a minimum width in excess of 102 inches; (3) is connected to all available permanent utilities; and (4) is tied down (a) to a permanent foundation on a lot either owned or leased by the homeowner or (b) is set on piers, with wheels removed and skirted, in a mobile home park.

Moderate Income Household

A household with an annual income between the lower income eligibility limits and 120 percent of the area median family income adjusted by household size, usually as established by the U.S. Department of Housing and Urban Development (HUD) for the Section 8 housing program.

Modular Unit

A factory-fabricated, transportable building or major component designed for use by itself or for incorporation with similar units on-site into a structure for residential, commercial, educational, or industrial use. In addition to lacking an integral chassis or permanent hitch to allow future movement, differs from mobile homes and manufactured housing by being subject to California housing law design standards. California standards are more restrictive than federal standards in some respects (e.g., plumbing and energy conservation). Also called “factory-built housing” and regulated by state law of that title.

Municipal Services

Services traditionally provided by local government, including water and sewer, roads, parks, schools, and police and fire protection.



National Ambient Air Quality Standards

The prescribed level of pollutants in the outside air that cannot be exceeded legally during a specified time in a specified geographical area.

National Environmental Policy Act (NEPA)

An act passed in 1974 establishing federal legislation for national environmental policy, a council on environmental quality, and the requirements for environmental impact statements.

National Flood Insurance Program

A federal program that authorizes the sale of federally subsidized flood insurance in communities where such flood insurance is not available privately.

National Historic Preservation Act

A 1966 federal law that established a National Register of Historic Places and the Advisory Council on Historic Preservation, and that authorized grants-in-aid for preserving historic properties.

National Register of Historic Places

The official list, established by the National Historic Preservation Act, of sites, districts, buildings, structures, and objects significant in the nation's history or whose artistic or architectural value is unique.

Natural Resource Land

Areas within a city that have been designed for the preservation of natural resources.

Natural State

The condition existing prior to development.

Neighborhood

A planning area commonly identified as such in a community's planning documents, and by the individuals residing and working within the neighborhood. Documentation may include a map prepared for planning purposes, on which the names and boundaries of the neighborhood are shown.

Neighborhood Park

Designed to meet the needs of individual residential developments within the city; varies in size from a single lot to parcels of approximately 5 acres.



Neighborhood Unit

According to one widely accepted concept of planning, the neighborhood unit should be the basic building block of the city. It is based on the elementary school, with other community facilities located at its center and arterial streets at its perimeter. The distance from the school to the perimeter should be a comfortable walking distance for a school-age child; there would be no through traffic uses. Limited industrial or commercial would occur on the perimeter where arterials intersect. This was a model for American suburban development after World War II.

Noise

Any sound that is undesirable because it interferes with speech and hearing, or is intense enough to damage hearing, or is otherwise annoying. Noise, simply, is unwanted sound.

Noise Attenuation

Reduction of the level of a noise source using a substance, material, or surface, such as earth berms and/or solid concrete walls.

Noise Contour

A line connecting points of equal noise level as measured on the same scale. Noise levels greater than the 60 Ldn contour (measured in dBA) require noise attenuation in residential development.

Non-Attainment

The condition of not achieving a desired or required level of performance. Frequently used in reference to air quality.

Non-Conforming Use

A use that was valid when brought into existence, but by subsequent regulation becomes no longer conforming. "Non-conforming use" is a generic term and includes (1) non-conforming structures (by virtue of size, type of construction, location on land, or proximity to other structures), (2) non-conforming use of a conforming building, (3) non-conforming use of a non-conforming building, and (4) non-conforming use of land. Thus, any use lawfully existing on any piece of property that is inconsistent with a new or amended general plan, and that in turn is a violation of a zoning ordinance amendment subsequently adopted in conformance with the general plan, will be a non-conforming use. Typically, non-conforming uses are permit-



ted to continue for a designated period of time, subject to certain restrictions.

Notice (of Hearing)

A legal document announcing the opportunity for the public to present their views to an official representative or board of a public agency concerning an official action pending before the agency.

Official County Scenic Highway

A segment of state highway identified in the Master Plan of State Highways Eligible for Official Scenic Highway Designation and designated by the Director of the Department of Transportation (Caltrans).

Open Space Land

Any parcel or area of land or water that is essentially unimproved and devoted to an open-space use for the purposes of (1) the preservation of natural resources, (2) the managed production of resources, (3) outdoor recreation, or (4) public health and safety.

Ordinance

A law or regulation set forth and adopted by a governmental authority, usually a city or a county.

Overlay

A land use designation on the General Plan Land Use Map, or a zoning designation on a zoning map, that modifies the basic underlying designation in some specific manner.

Parcel

A lot in single ownership or under single control, usually considered a unit for purpose of development.

Park Land; Parkland

Land that is publicly owned or controlled for the purpose of providing parks, recreation, or open space for public use.

Parking, Shared

A public or private parking area used jointly by two or more uses.

Parking Area, Public

An open area, excluding a street or other public way, used for the parking of automobiles and available to the public, whether for free or for compensation.



Parking Management

An evolving TDM technique designed to obtain maximum utilization from a limited number of parking spaces. Can involve pricing and preferential treatment for HOVs, non-peak period users, and short-term users.

Parking Ratio

The number of parking spaces provided per 1,000 square feet of floor area – e.g., 2:1 or “two per thousand.”

Parking Space, Compact

A parking space (usually 7.5 feet wide by 16 feet long when perpendicular to a driveway or aisle) permitted in some localities on the assumption that many modern cars are significantly smaller and require less room than a standard automobile. A standard parking space, when perpendicular to a driveway or aisle, is usually 8.5 feet wide by 18 feet long.

Parks

Open space lands whose primary purpose is recreation.

Parkway

An expressway or freeway designed for non-commercial traffic only; usually located within a strip of landscaped park or natural vegetation.

Parkway Strip

A piece of land located between the rear of a curb and the front of a sidewalk, usually used for planting low ground cover and/or street trees, also known as “planter strip.”

Pedestrian Trails

Improved or unimproved walkways or sidewalks located within park, beach, greenbelt, or open space areas.

Performance Standards

Zoning regulations that permit uses based on a particular set of standards of operation rather than on particular type of use. Performance standards provide specific criteria limiting noise, air pollution, emissions, odors, vibration, dust, dirt, glare, heat, fire hazards, wastes, traffic impacts, and visual impact of a use.

Planned Community

A large-scale development whose essential features are a definable boundary; a consistent, but not necessarily uniform, character; overall control during the development process



by a single development entity; private ownership of recreation amenities; and enforcement of covenants, conditions, and restrictions by a master community association.

Planned Unit Development (PUD)

A description of a proposed unified development consisting at a minimum of a map and adopted ordinance setting forth the regulations governing, and the location and phasing of all proposed uses and improvements to be included in the development.

Planning Area

The area directly addressed by the general plan. A city's planning area typically encompasses the city limits and potentially annexable land within its sphere of influence.

Planning Commission

A body, usually having five or seven members, created by a city or county in compliance with California law (§65100) which requires the assignment of the planning functions of the city or county to a planning department, planning commission, hearing officers, and/or the legislative body itself, as deemed appropriate by the legislative body.

Pollution, Non-Point

Sources for pollution that are less definable and usually cover broad areas of land, such as agricultural land with fertilizers that are carried from the land by runoff, or automobiles.

Pollution, Point

In reference to water quality, a discrete source from which pollution is generated before it enters receiving waters, such as a sewer outfall, a smokestack, or an industrial waste pipe.

Prime Agricultural Land

(1) Land used actively in the production of food, fiber, or livestock; (2) all land that qualifies for rating as Class I or Class II in the Natural Resources Conservation Service land use compatibility classifications; (3) land that qualifies for rating 80 through 100 in the Storie Index Rating.

Prime Farmland

Land that has the best combination of physical and chemical characteristics for the production of crops. Prime Farmland must have been used for the production of irrigated crops within the last three years. Prime Farmland does not include



publicly owned lands for which there is an adopted policy preventing agricultural use.

Pro Rata

Refers to the proportionate distribution of something to something else or to some group, such as the cost of infrastructure improvements associated with new development apportioned to the users of the infrastructure on the basis of projected use.

Public and Quasi-Public Facilities

Institutional, academic, governmental, and community service uses, either owned publicly or operated by nonprofit organizations, including private hospitals and cemeteries.

Reclamation

The reuse of resources, usually those present in solid wastes or sewage.

Recreation, Active

A type of recreation or activity that requires the use of organized play areas including, but not limited to, softball, baseball, football and soccer fields, tennis and basketball courts, and various forms of children's play equipment.

Recreation, Passive

Type of recreation or activity that does not require the use of organized play areas.

Redevelop

To demolish existing buildings; or to increase the overall floor area existing on a property, or both; irrespective of whether a change occurs in land use.

Regional

Pertaining to activities or economies at a scale greater than that of a single jurisdiction, and affecting a broad geographic area.

Regional Beaches and Parks

Designated to meet the needs of residents and non-residents and usually attracting a large number of people from outside the immediate area; generally over 30 acres in size.

Regional Park

A park typically 150 to 500 acres in size focusing on activities and natural features not included in most other types of



parks and often based on a specific scenic or recreational opportunity.

Rehabilitation

The repair, preservation, and/or improvement of sub-standard housing.

Retrofit

To add materials and/or devices to an existing building or system to improve its operation, safety, or efficiency. Buildings have been retrofitted to use solar energy and to strengthen their ability to withstand earthquakes, for example.

Rezoning

An amendment to the map and/or text of a zoning ordinance to effect a change in the nature, density, or intensity of uses allowed in a zoning district and/or on a designated parcel or land area.

Richter Scale

A measure of the size or energy release of an earthquake at its source. The scale is logarithmic; the wave amplitude of each number on the scale is 10 times greater than that of the previous whole number.

Ridgeline

A line connecting the highest points along a ridge and separating drainage basins or small-scale drainage systems from one another.

Right-of-Way

A strip of land occupied or intended to be occupied by certain transportation and public use facilities, such as roads, railroads, and utility lines.

Riparian Lands

Riparian lands are comprised of the vegetative and wildlife areas adjacent to perennial and intermittent streams. Riparian areas are delineated by the existence of plant species normally found near fresh water.

Sanitary Landfill

The controlled placement of refuse within a limited area, followed by compaction and covering with a suitable thickness of earth and other containment material.



Sanitary Sewer

A system of subterranean conduits that carries refuse liquids or waste matter to a plant where the sewage is treated, as contrasted with storm drainage systems (which carry surface water) and septic tanks or leech fields (which hold refuse liquids and waste matter on-site).

Scenic Highway Corridor

The area outside a highway right-of-way that is generally visible to persons traveling on the highway.

Scenic Highway/Scenic Route

A highway, road, drive, or street that, in addition to its transportation function, provides opportunities for the enjoyment of natural and man-made scenic resources and access or direct views to areas or scenes of exceptional beauty or historic or cultural interest. The aesthetic values of scenic routes often are protected and enhanced by regulations governing the development of property or the placement of outdoor advertising. Until the mid-1980s, general plans in California were required to include a Scenic Highways Element.

Second Unit

A self-contained living unit, either attached to or detached from, and in addition to, the primary residential unit on a single lot. "Granny flat" is one type of second unit intended for the elderly.

Seiche

An earthquake-generated wave in an enclosed body of water such as a lake, a reservoir, or a bay.

Seismic

Caused by or subject to earthquakes or earth vibrations.

Seniors

Persons age 62 and older.

Senior Housing

See "Elderly Housing."

Septic System

A sewage treatment system that includes a settling tank through which liquid sewage flows and in which solid sewage settles and is decomposed by bacteria in the absence of



oxygen. Septic systems are often used for individual home waste disposal where an urban sewer system is not available.

Settlement

(1) The drop in elevation of a ground surface caused by settling or compacting; (2) the gradual downward movement of an engineered structure due to compaction. *Differential* settlement is uneven settlement, where one part of a structure settles more or at a different rate than another part.

Siltation

(1) The accumulating deposition of eroded material; (2) the gradual filling in of streams and other bodies of water with sand, silt, and clay.

Solid Waste

Any unwanted or discarded material that is not a liquid or gas. Includes organic wastes, paper products, metals, glass, plastics, cloth, brick, rock, soil, leather, rubber, yard wastes, and wood, but does not include sewage and hazardous materials. Organic wastes and paper products comprise about 75 percent of typical urban solid waste.

Special Use Parks or Facilities

Park-like places where a unique recreational activity is provided.

Specific Plan

A tool authorized by *Government Code* §65450, et seq. for the systematic implementation of the general plan for a defined portion of a community's planning area. A specific plan must specify in detail the land uses, public and private facilities needed to support the land uses, phasing of development, standards for the conservation, development, and use of natural resources, and a program of implementation measures, including financing measures.

Sphere of Influence

The probable physical boundaries and service area of a local agency, as determined by the Local Agency Formation Commission of the county.

Standards

(1) A rule or measure establishing a level of quality or quantity that must be complied with or satisfied. *Government Code* §65302 requires that general plans spell out the objectives, principles, standards, and proposals of the general plan. Ex-



amples of standards might include the number of acres of park land per 1,000 population that the community will attempt to acquire and improve, or the traffic Level of Service (LOS) that the plan hopes to attain; (2) requirements in a zoning ordinance that govern building and development as distinguished from use restrictions – for example, site design regulations such as lot area, height limit, frontage, landscaping, and floor area ratio.

Streets, Local

See “Streets, Minor.”

Streets, Major

The transportation network that includes a hierarchy of freeways, arterials, and collectors to service through traffic.

Streets, Minor

Local streets not shown on the Circulation Plan, Map, or Diagram whose primary intended purpose is to provide access to fronting properties.

Streets, Through

Streets that extend continuously between other major streets in the community.

Structure

Anything constructed or erected that requires location on the ground (excluding swimming pools, fences, and walls used as fences).

Subdivision

The division of a tract of land into defined lots, either improved or unimproved, that can be separately conveyed by sale or lease, and that can be altered or developed. “Subdivision” includes a condominium project as defined in §1350 of the California *Civil Code* and a community apartment project as defined in §11004 of the *Business and Professions Code*.

Subdivision Map Act

Section 66410, et seq. of the California *Government Code*, this Act vests in local legislative bodies the regulation and control of the design and improvement of subdivisions, including the requirement for tentative and final maps.

Subregional

Pertaining to a portion of a region.



Subsidence

The sudden sinking or gradual downward settling and compaction of soil and other surface material with little or no horizontal motion. Subsidence may be caused by a variety of human and natural activity, including earthquakes.

Subsidize

To assist by payment of a sum of money or by the granting of terms or favors that reduce the need for monetary expenditures. Housing subsidies may take the forms of mortgage interest deductions or tax credits from federal and/or state income taxes, sale or lease at less than market value of land to be used for the construction of housing, payments to supplement a minimum affordable rent, and the like.

Sustainability

Community use of natural resources in a way that does not jeopardize the ability of future generations to live and prosper.

Sustainable Development

Development that maintains or enhances economic opportunity and community well being while protecting and restoring the natural environment upon which people and economies depend. Sustainable development meets the needs of the present without compromising the ability of future generations to meet their own needs (Source: Minnesota State Legislature).

Traffic Model

A mathematical representation of traffic movement within an area or region based on observed relationships between the kind of intensity of development in specific areas. Many traffic models operate on the theory that trips are produced by persons living in residential areas and are attracted by various non-residential land uses.

Transfer of Development Rights

Also known as “Transfer of Development Credits,” a program that can relocate potential development from areas where proposed land use or environmental impact are considered undesirable (the “donor” site) to another (“receiver”) site chosen on the basis of its ability to accommodate additional units of development beyond that for which it was zoned, with minimal environmental, social, and aesthetic impacts.



Transit

The conveyance of persons or goods from one place to another by means of a local, public transportation system.

Transit, Public

A system of regularly scheduled buses and/or trains available to the public on a fee-per-ride basis. Also called “mass transit.”

Transit-Dependent

Refers to persons unable to operate automobiles or other motorized vehicles, or those who do not own motorized vehicles. Transit-dependent citizens must rely on transit, para-transit, or owners of private vehicles for transportation. Transit-dependent citizens include the young, the handicapped, the elderly, the poor, and those with prior violations in motor vehicle laws.

Transit-Oriented Development (TOD)

A mixed use community within an average 2,000-foot walking distance of a transit stop and core commercial area. TODs mix residential, retail, office, and public uses in a walkable environment, making it convenient for residents and employees to travel by transit, bicycle, foot, or car.

Transportation Demand Management (TDM)

A strategy for reducing demand on the road system by reducing the number of vehicles using the roadways and/or increasing the number of persons per vehicle. TDM attempts to reduce the number of persons who drive alone on the roadway during the commute period and to increase the number in carpools, vanpools, buses and trains, walking, and biking. TDM can be an element of TSM (see below).

Transportation Systems Management (TSM)

A comprehensive strategy developed to address the problems caused by additional development, increasing trips, and a shortfall in transportation capacity. Transportation Systems Management focuses on more efficiently utilizing existing highway and transit systems rather than expanding them. TSM measures are characterized by their low cost and quick implementation time frame, such as computerized traffic signals, metered freeway ramps, and one-way streets.

Trip

A one-way journey that proceeds from an origin to a destination via a single mode of transportation; the smallest unit



of movement considered in transportation studies. Each trip has one “production end,” (or origin – often from home, but not always) and one “attraction end,” (destination).

Trip Generation

The dynamics that account for people making trips in automobiles or by means of public transportation. Trip generation is the basis for estimating the level of use for a transportation system and the impact of additional development or transportation facilities on an existing, local transportation system. Trip generations of households are correlated with destinations that attract household members for specific purposes.

Truck Route

A path of circulation required for all vehicles exceeding set weight or axle limits, a truck route follows major arterials through commercial or industrial areas and avoids sensitive areas.

Tsunami

A large ocean wave generated by an earthquake in or near the ocean.

Uniform Building Code (UBC)

A national, standard building code that sets forth minimum standards for construction.

Uniform Housing Code (UHC)

State housing regulations governing the condition of habitable structures with regard to health and safety standards, and which provide for the conservation and rehabilitation of housing in accordance with the Uniform Building Code (UBC).

Urban

Of, relating to, characteristic of, or constituting a city. Urban areas are generally characterized by moderate and higher density residential development (i.e., three or more dwelling units per acre), commercial development, and industrial development, and the availability of public services required for that development, specifically central water and sewer, an extensive road network, public transit, and other such services (e.g., safety and emergency response). Development not providing such services may be “non-urban” or “rural.” CEQA defines “urbanized area” as an area that has a popu-



lation density of at least 1,000 persons per square mile (*Public Resources Code* §21080.14(b)).

Urban Design

The attempt to give form, in terms of both beauty and function, to selected urban areas or to whole cities. Urban design is concerned with the location, mass, and design of various urban components and combines elements of urban planning, architecture, and landscape architecture.

Urban Growth Boundary

An officially adopted and mapped line dividing land to be developed from land to be protected for natural or rural uses. Urban growth boundaries are regulatory tools, often designated for long periods of time (20 or more years) to provide greater certainty for development and conservation goals (source: Greenbelt Alliance). (Also called Urban Limit Line)

Urban Land Use

Residential, commercial, or industrial land use in areas where urban services are available.

Urban Reserve

An area outside of an urban service area but within an urban growth boundary, in which future development and extension of municipal services are contemplated but not imminent.

Urban Service Area

(1) An area in which urban services will be provided and outside of which such services will not be extended;
(2) developed, undeveloped, or agricultural land, either incorporated or unincorporated, within the sphere of influence of a city, which is served or will be served during the first five years of an adopted capital improvement program by urban facilities, utilities, and services. The boundary around an urban service area is called the “urban service area boundary” and is to be developed in cooperation with a city and adopted by a Local Agency Formation Commission (*Government Code* §56080).

Urban Services

Utilities (such as water, gas, electricity, and sewer) and public services (such as police, fire, schools, parks, and recreation) provided to an urbanized or urbanizing area.



Urban Sprawl

Haphazard growth or outward extension of a city resulting from uncontrolled or poorly managed development.

Utility Corridors

Rights-of-way or easements for utility lines on either publicly or privately owned property. (See “Right-of-Way” or “Easement.”)

Vehicle Miles Traveled (VMT)

A key measure of overall street and highway use. Reducing VMT is often a major objective in efforts to reduce vehicular congestion and achieve regional air quality goals.

Very Low Income Household

A household with an annual income usually no greater than 30 percent of the area median family income adjusted by household size, as determined by a survey of incomes conducted by a city or a county, or in the absence of such a survey, based on the latest available eligibility limits established by the U.S. Department of Housing and Urban Development (HUD) for the Section 8 housing program.

View Corridor

The line of sight – identified as to height, width, and distance – of an observer looking toward an object of significance to the community (e.g., ridgeline, river, historic building, etc.); the route that directs the viewer’s attention.

View Park

Smaller passive parks designed to take advantage of a significant view.

Viewshed

The area within view from a defined observation point.

Volume-to-Capacity Ratio

A measure of the operating capacity of a roadway or intersection, in terms of the number of vehicles passing through, divided by the number of vehicles that theoretically could pass through when the roadway or intersection is operating at its designed capacity. Abbreviated as “V/C.” At a V/C ratio of 1.0, the roadway or intersection is operating at capacity. If the ratio is less than the 1.0, the traffic facility has additional capacity. Although ratios slightly greater than 1.0 are possible, it is more likely that the peak hour will elongate into a “peak period.”



Water-Efficient Landscaping

Landscaping designed to minimize water use and maximize energy efficiency.

Watercourse

Natural or once natural flowing (perennially or intermittently) water including rivers, streams, and creeks. Includes natural waterways that have been channelized, but does not include man-made channels, ditches, and underground drainage and sewage systems.

Watershed

The total area above a given point on a watercourse that contributes water to its flow; the entire region drained by a waterway or watercourse that drains into a lake or reservoir.

Waterway

See “Watercourse.”

Wetlands

Transitional areas between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is covered by shallow water. Under a “unified” methodology now used by all federal agencies, wetlands are defined a “those areas meeting certain criteria for hydrology, vegetation, and soils.”

Wildlife Refuge

An area maintained in a natural state for the preservation of animal and plant life.

Williamson Act

Known formally as the California Land Conservation Act of 1965, it was designed as an incentive to retain prime agricultural land and open space in agricultural use, thereby slowing its conversion to urban and suburban development. The program entails a ten-year contract between the city or the county and an owner of land whereby the land is taxed on the basis of its agricultural use rather than its market value. The land becomes subject to certain enforceable restrictions, and certain conditions need to be met prior to approval of an agreement.

Zero Lot Line

A detached single-family unit distinguished by the location of one exterior wall on a side property line.



Zone, Combining

A special purpose zone that is superimposed on the regular zoning map. Combining zones are used for a variety of purposes, such as airport compatibility, floodplain or wetlands protection, historic designation, or special parking regulations. Also called “overlay zone.”

Zone, Interim

A zoning designation that temporarily reduces or freezes allowable development in an area until a permanent classification can be fixed; generally assigned during general plan preparation to provide a basis for permanent zoning.

Zone, Traffic

In a mathematical traffic model the area to be studied is divided into zones, with each zone treated as producing and attracting trips. The production of trips by a zone is based on the number of trips to or from work or shopping, or other trips produced per dwelling unit.

Zoning

The division of a city or a county by legislative regulations into areas – or zones – that specify allowable uses for real property and size restrictions for buildings within these areas; a program that implements policies of the General Plan.

Zoning District

A designated section of a city or a county for which prescribed land use requirements and building and development standards are uniform.

Zoning, Exclusionary

Development regulations that result in the exclusion of low- and moderate-income and/or minority families from a community.

Zoning, Incentive

The awarding of bonus credits to a development in the form of allowing more intensive use of land if public benefits – such as preservation of greater than the minimum required open space, provision for low- and moderate-income housing, or plans for public plazas and courts at ground level – are included in a project.

Zoning, Inclusionary

Regulations that increase housing choice by providing the opportunity to construct more diverse and economical



housing to meet the needs of low- and moderate-income families. Often such regulations require a minimum percentage of housing for low- and moderate-income households in new housing developments and in conversions of apartments to condominiums.





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